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1739
05

LINK-BELT MACHINERY COMPANY

GENERAL CATALOG

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L. I. YEOMANS, ASST. SUPT.

THE LINK-BELT MACHINERY CO.

(INCORPORATED IN 1880)

ENGINEERS
FOUNDERS
MACHINISTS
CHICAGO, U. S. A.

APPROVED APPLIANCES

FOR REDUCING THE COST OF HANDLING RAW AND MANUFACTURED PRODUCTS

PHILADELPHIA, THE LINK-BELT ENGINEERING CO.

HARVARD UNIVERSITY
SCHOOL OF ENGINEERING

JUN 20 1917
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CHICAGO, U. S. A.

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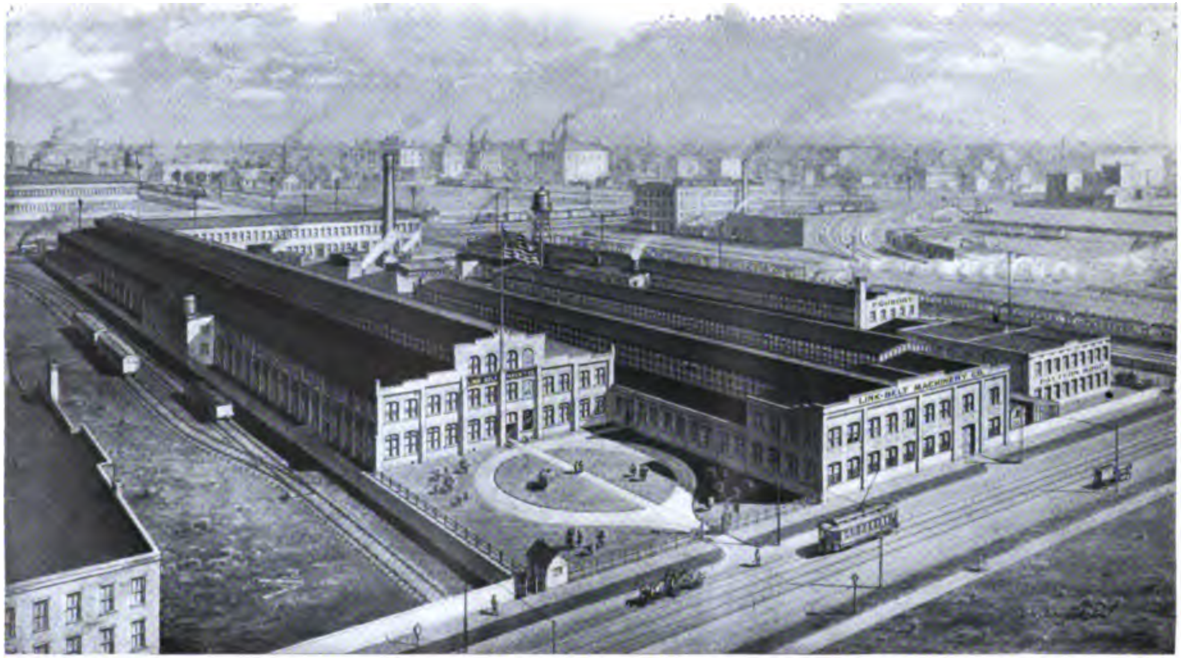
CODES USED:
A. B. C. (4TH AND 5TH ED.), LIEBER, WESTERN UNION
DIRECTORY, MCNEILL, AND A1.

WE DESIGN AND BUILD MACHINERY FOR TRANSPORTING BULK MATERIALS, PACKAGES, AND MISCELLANEOUS ARTICLES IN LARGE NUMBERS, WHICH POSSESSES THE GREAT ADVANTAGE OF CONTINUOUS MOVEMENT, AS AGAINST THE INTERMITTENT ACTION OF HAND TRUCKS, INDUSTRIAL RAILWAYS, OR ORDINARY FREIGHT ELEVATORS.

BY OUR METHODS MATERIALS ARE TRANSPORTED HORIZONTALLY, VERTICALLY, AT ANY ANGLE OF INCLINATION, AND AT ANY ANGLE ON A HORIZONTAL PLANE. MINIMUM SPACE IS OCCUPIED, AND GREAT ECONOMY IN POWER AND LABOR IS EFFECTED.

WHILE THE HIGHEST DEGREE OF ECONOMY AND UTILITY CAN BE OBTAINED ONLY BY THE EMPLOYMENT OF MACHINERY DESIGNED AND CONSTRUCTED TO SUIT THE LOCAL CONDITIONS IN EACH CASE, AN EXPERIENCE OF 25 YEARS HAS ENABLED US TO PERFECT NUMEROUS TYPES OF MACHINERY WHICH HAVE DEVELOPED SUPERIOR EFFICIENCY, AND WHICH, BY SUITABLE CHANGES IN ARRANGEMENT OR CONSTRUCTION, CAN BE APPLIED WITH EQUAL SUCCESS TO ALL CONDITIONS OF SIMILAR GENERAL CHARACTER. MANY OF THESE TYPES, WHICH POSSESS GREAT DIVERSITY OF ARRANGEMENT, ARE ILLUSTRATED ON THE FOLLOWING PAGES.



GENERAL OFFICE AND WORKS
THE LINK-BELT MACHINERY COMPANY, CHICAGO, ILL.
MACHINE SHOP AND GENERAL OFFICE, 410 FEET BY 125 FEET. FOUNDRY AND PATTERN VAULTS 410 FEET BY 93 FEET. STRUCTURAL STEEL SHOP, 125 FEET BY 336 FEET. POWER HOUSE AND SMITH SHOP, 100 FEET BY 80 FEET. AREA COVERED, 5½ ACRES.

In correspondence refer to this book as

Catalog No. 40

THE PRICE LISTS HEREIN SUPERSEDE ALL OTHERS, AND ARE SUBJECT TO CHANGE WITHOUT NOTICE

For information concerning our methods applied to special lines of work, see list of publications on page 7.

To facilitate the prompt and intelligent treatment of orders or inquiries, the following information should be furnished us in all cases:

FIRST—State the character of the material to be handled; if in bulk, give weight in pounds per bushel or cubic foot, and quantity to be handled per hour.

If in packages, state size and weight of each, and number to be handled per hour.

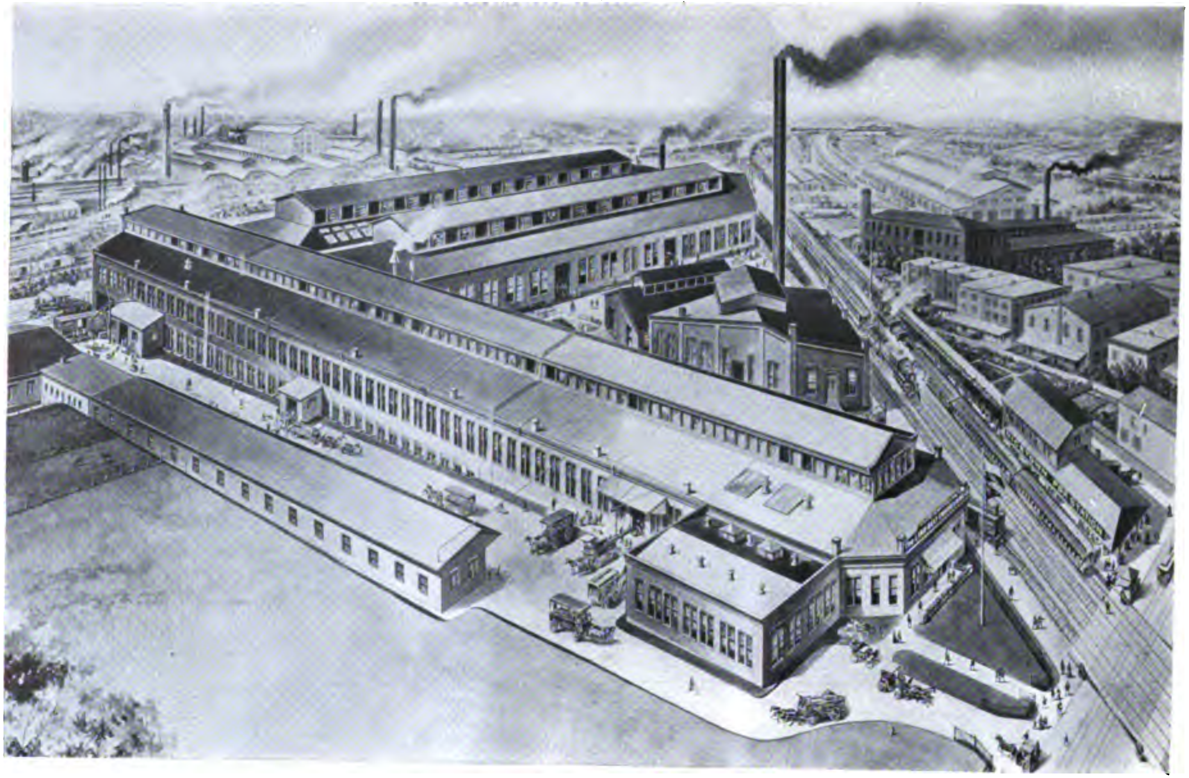
If in the form of articles, or pieces of miscellaneous shapes and sizes, describe same and state capacity required, as nearly as possible.

SECOND—State the distance and direction or directions in which the material is to be transported, and give the number and location of points at which same is to be received and discharged.

THIRD—If motive power is already provided, state speed of power shaft and its location in relation to the machinery; or if power is to be included, state whether steam, gas, or electric is preferred.

FOURTH—State whether we are to include only the operating machinery proper, or all, or what portion of the supporting structure, hoppers, bins, and special appliances incident to its employment.

Sketches, no matter how crude, will greatly assist us in arriving at a correct knowledge of your conditions.



GENERAL OFFICE AND WORKS
THE LINK-BELT ENGINEERING COMPANY
NICETOWN, PHILADELPHIA

Special Publications

Publications illustrating the application of our methods to special lines of work are issued from time to time. Any of those referred to in the following partial list of industries in which our machinery is extensively employed will be mailed on request.

RAILWAY COMPANIES.
Handling locomotive coal and cinders and railway freight, see pages 38, 44, 52 to 71.
The Link-Belt counter-balanced undercut gate and hooded chute, page 106.
Also Special Book, No. 35.

MARINE, DOCK, AND NAVIGATION COMPANIES.
Ship loading and fueling plants, pages 39, 45, 54 to 59.
Handling freight in docks and warehouses, pages 9, 20, 21, 54 to 71.
Also Special Booklet, No. 60.

HANDLING MISCELLANEOUS FREIGHT AND PACKAGES.
In wholesale and retail mercantile establishments and industrial plants, pages 9, 66 to 71, and 82.
Miscellaneous parcels in department stores, mail order houses, etc., page 83.
Also Special Booklet, No. 35.

COAL AND METAL MINES, SMELTERS, ETC.
Coal tipples, shaking screens, weigh boxes, etc., page 23. Car hauls, page 24. Revolving screen, page 26. Victor box car loader, page 25. Coal breakers and disintegrators, pages 113 and 114. Washing coal for coke and fuel, page 27. Metal mines, page 28. Placer mining dredges, etc., page 29.
Also Special Book, No. 41.

COAL YARDS, WHOLESALE AND RETAIL.
Wholesale and retail coal pockets, pages 30 and 77.
Yard scrapers, page 115.
Also Special Booklet, No. 47.

BOILER HOUSE EQUIPMENTS.
Handling coal and ashes in boiler room, pages 46 to 51.
Cars and turntables, pages 110 to 112.
Coal breakers, page 113.
Also Special Booklet, No. 46.

PUBLISHING HOUSES.
Handling newspapers, books, stock, etc., see page 22.
Also Special Booklet, No. 51.

BELT CONVEYOR.
Ball bearing belt conveyor rolls, see pages 91 to 97.
Also Special Booklet, No. 48.

RENOLD SILENT CHAIN GEAR.
See pages 160 and 161.
Also Special Booklet, No. 39.

POWER TRANSMISSION BY MANILA ROPE. See pages 8, 207 to 213.
Also Special Booklet, No. 49.

HANDLING HOT MATERIALS, OR FOR WORK UNDER HIGH TEMPERATURES.
Pages 37, 48 to 51, 53, and 62.

THE DODGE SYSTEM OF HANDLING AND STORING COAL AND ORES.
Pages 40 to 44.

CLAM SHELL BUCKETS, LOCOMOTIVE CRANES AND HOISTING TOWERS.
Pages 42 to 44.

ICE HOUSES AND REFRIGERATING PLANTS. Page 11.

BREWERIES, MALT HOUSES, AND DISTILLERIES. Page 10.

PACKING AND PROVISION HOUSES.
Pages 12 and 13.

GRAIN ELEVATORS, FLOUR AND FEED MILLS. Pages 14 and 15.

SAW MILLS AND WOOD WORKING ESTABLISHMENTS. Pages 16 and 17.

FRUIT AND VEGETABLE CANNERIES.
Page 18.

CANE AND BEET SUGAR PLANTATIONS AND REFINERIES. Page 19.

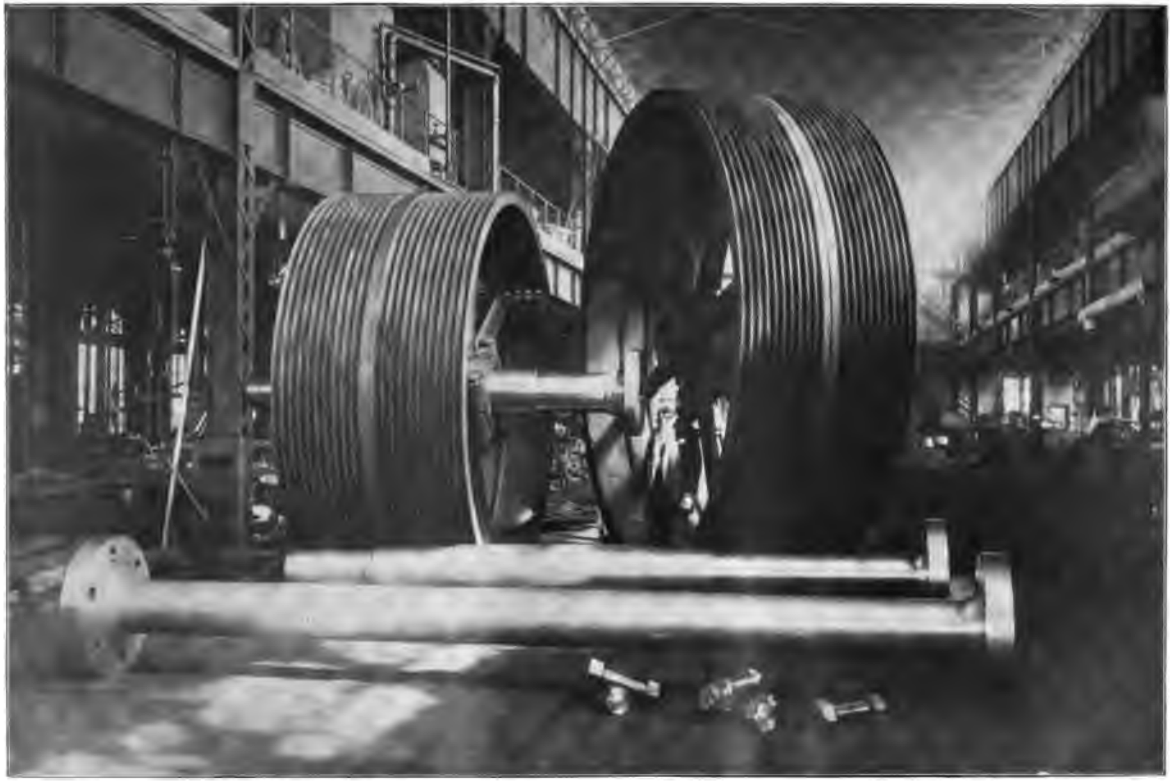
STEEL WORKS, ROLLING MILLS, WIRE AND TUBE MILLS, FURNACES, FOUNDRIES, GLASS WORKS, ETC.
Pages 31 to 33.

COKE WORKS, GAS HOUSES, ETC. (handling coke). Page 34.

CEMENT MILLS, STONE CRUSHING AND HANDLING PLANTS, BRICK YARDS, TILE WORKS, LIME KILNS, ETC.
Pages 35 to 37.

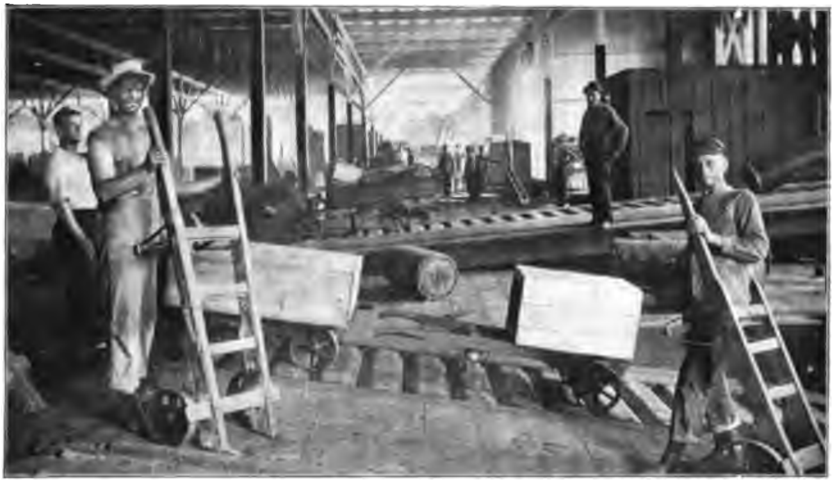
MISCELLANEOUS

Tanneries, pulp and paper mills, wall paper factories, starch and glucose factories, cotton compress companies, cotton seed oil mills, oil refineries, tobacco factories, cracker, cake, and bread bakeries, textile industries, pure food companies, asphalt, concrete, and other paving companies, phosphate mills and fertilizer plants, large office and public buildings, hotels, and in fact every enterprise in which materials of any kind, in large quantities, are transported from place to place.



PARTIAL VIEW OF MACHINE SHOP LINK-BELT MACHINERY CO., CHICAGO

SHOWING PATENT MACHINE MOULDED ROPE SHEAVES AND STEEL SHAFTS FOR 1,400 H. P. ROPE TRANSMISSION FURNISHED THE C. C. WASHBURN'S FLOURING MILLS CO., MINNEAPOLIS MINN. DRIVING SHEAVE 14 FEET DIAMETER, WEIGHT 40,000 LBS.; DRIVEN SHEAVE 10 FEET 8 INCH DIAMETER, WEIGHT 22,000 LBS. BOTH GROOVED FOR 20 TWO-INCH ROPES. SHAFTS 11 INCHES TO 15 INCHES IN DIAMETER.

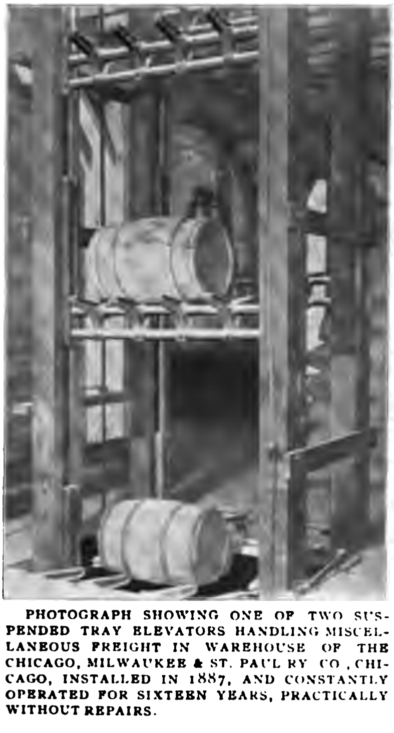


TWENTY-EIGHT CONTINUOUS FREIGHT CARRIERS FOR LOADING AND UNLOADING VESSELS AT DOCKS OF THE SOUTHERN PACIFIC COMPANY, GALVESTON, TEX. THESE ARE ADJUSTABLE TO HEIGHT OF TIDE AND FREE-BOARD OF VESSELS. WE ALSO EQUIPPED DOCKS OF THIS COMPANY AT NEW ORLEANS WITH CARRIERS OF SAME TYPE.

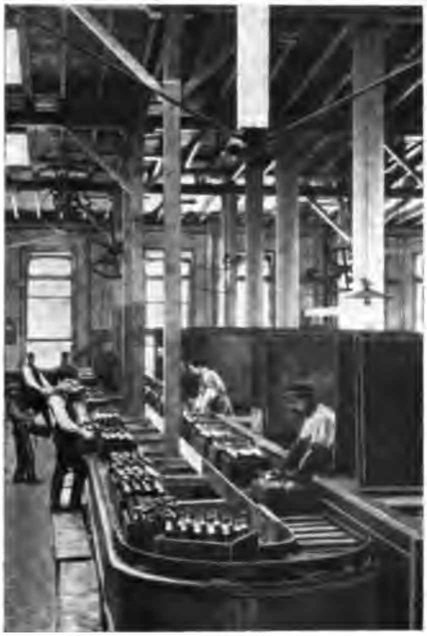
Handling Freight

NO class of modern labor-saving machinery yields so large a return on the investment as the constantly moving types of elevators, conveyors, and carriers in handling freight of every character for railroad and navigation companies, and for industrial establishments of all kinds. By this means, the labor employed is not only reduced to a minimum, but the increased facilities afforded are such that a much larger volume of freight can be handled in a limited space or a given time.

Booklet No. 35, illustrating and describing many of the most efficient and economical methods employed in work of this character, will be mailed on request.



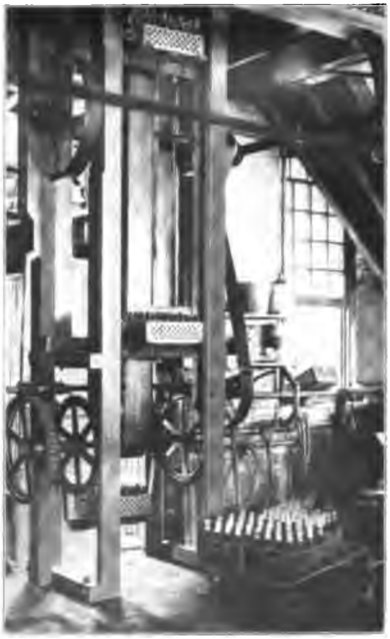
PHOTOGRAPH SHOWING ONE OF TWO SUSPENDED TRAY ELEVATORS HANDLING MISCELLANEOUS FREIGHT IN WAREHOUSE OF THE CHICAGO, MILWAUKEE & ST. PAUL RY. CO., CHICAGO, INSTALLED IN 1887, AND CONSTANTLY OPERATED FOR SIXTEEN YEARS, PRACTICALLY WITHOUT REPAIRS.

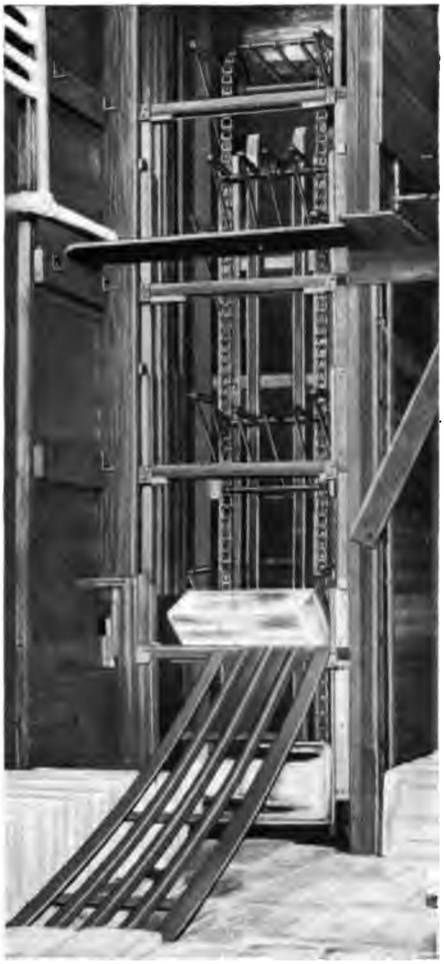


Breweries, Malt Houses, and Distilleries

APPROVED appliances for handling wet or dry grains, elevating and conveying kegs, barrels, bags, bottles, cases, etc., are shown on pages 67 to 84. For economical method of handling coal and ashes in boiler rooms, see pages 46 to 51, 76 and 77. For Link-Belt Ice Crushers, see page 13.

The above photograph shows a Link-Belt Transfer, furnished the Bottling Department of Pabst Brewing Co., Milwaukee, Wis., for carrying bottled beer in cases, from corking machines to soaking vats, while the one below shows a suspended tray elevator for bottled beer in cases, furnished the Arnholt & Schaefer Brewing Co., Philadelphia.





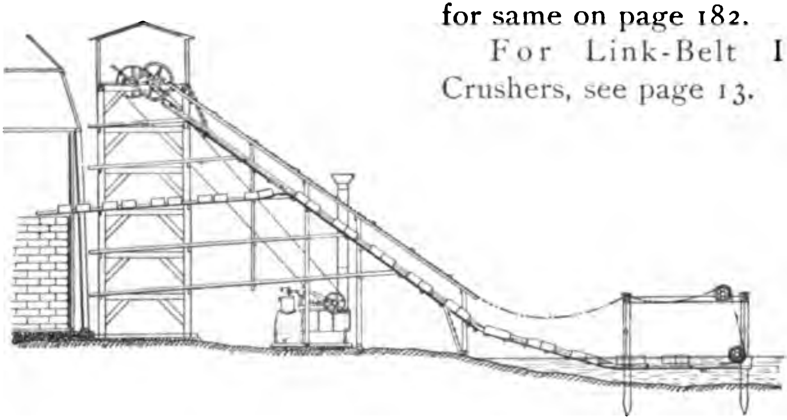
Ice Houses and Refrigerating Plants

EQUIPPED with Elevators and Conveyors of any length or capacity and to suit any conditions.

Cut shows elevator installed for the Knickerbocker Ice Co., Philadelphia, while the diagram below illustrates our standard undershot conveyor for delivering from pond to ice house. Overshot conveyors differ in that the chain returns below, passing under the water at receiving point.

Standard 6-inch pitch Ice Chain with forms of attachments most commonly used are shown on page 170, and sprocket wheels for same on page 182.

For Link-Belt Ice Crushers, see page 13.



Packing Houses

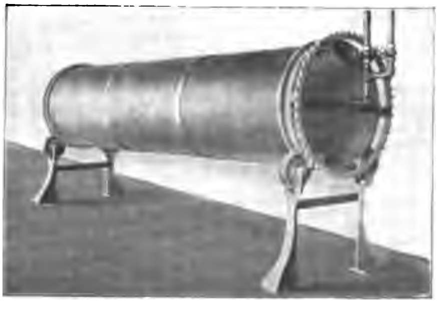
THERE is no industry in which our modern methods are more generally employed than in the packing houses, where Link-Belt appliances handle cattle, hogs, sheep, and their numerous and varied products and bi-products, in every process of manufacture.

Taking the pork department as an example, the hogs are taken from the scalding tank with our Automatic Hog Throw-Out, delivered by it to Link-Belt Traveling Bristle Bench, passed through the hog scraper to a Link-Belt Traveling Scraping Bench, and from thence to the rail. Once on the rail, they are conveyed to hanging and chill rooms, and from thence finally to the block in cutting department. By the above devices the hog is automatically handled from the scalding tank to the cutting room, adding very greatly to the capacity of the plant, and decreasing cost per hog of killing and dressing.

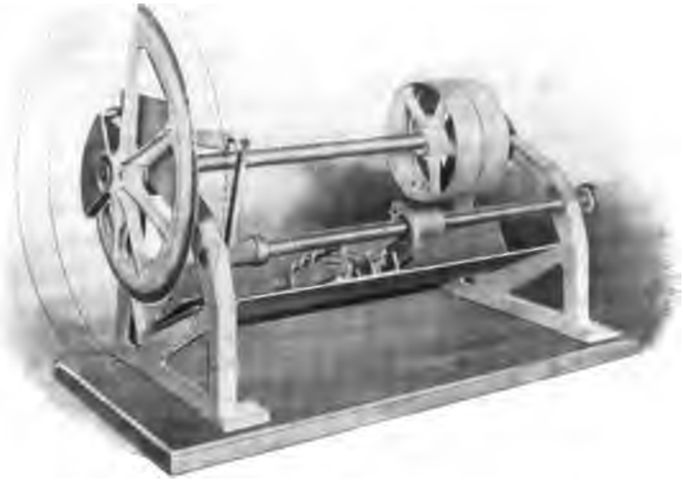
The trimmings, heads, feet, entrails, and all the products are carried successively to their respective departments by Link-Belt Elevators and Conveyors. In the fertilizer, canning, and glue departments, our appliances are used to great advantage, materially saving time and labor.

"Link-Belt" Fat Washers

We manufacture Screens for washing fat, bones, and many other products, using both perforated metal and wire-cloth.



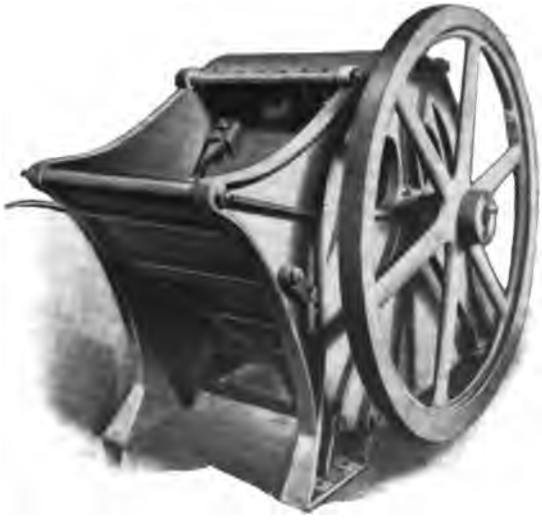
The "Link-Belt" Automatic Dried Beef Chipper and Bacon Slicer



IT cuts dried beef and bacon with absolute uniformity as to thickness, The feed mechanism may be set to cut beef $\frac{1}{64}$, $\frac{1}{32}$, or $\frac{3}{64}$ of an inch thick; and for bacon $\frac{1}{32}$, $\frac{1}{16}$, or $\frac{3}{32}$ of an inch thick.

Used by Libby, McNeill & Libby, Armour & Co., Kingan & Co., Cudahy Packing Co., Nelson Morris & Co., G. H. Hammond Packing Co., Schwarzschild & Sulzberger, and others. Price, $125.00 net.

"Link-Belt" Ice Crusher



Prices quoted on application.

Built for heavy duty and thoroughly reliable.

Crushers are driven by Link-Belting with Clutch Sprocket Wheels for throwing in and out of gear.

Used by Swift & Co., Kingan & Co., Ltd., Fairbank Canning Co., Armour & Co., The Cudahy Packing Co., Jacob Dold Packing Co., Nelson Morris & Co., Schwarzschild & Sulzberger, G. H. Hammond Packing Co., and others.

PENNSYLVANIA RAILROAD GRAIN ELEVATOR
WASHINGTON AVENUE WHARF, PHILADELPHIA, PA.

THE GALLERY OVER PIER IS EQUIPPED WITH TWO 36-INCH RUBBER BELT CONVEYORS, 800 FEET CENTERS DRIVEN FROM THE LAND END. EACH BELT HAS A CAPACITY OF 14,000 BUSHELS PER HOUR. DISCHARGE IS EFFECTED THROUGH LINK-BELT STATIONERY TRIPPERS.

Grain Elevators and Flour Mills

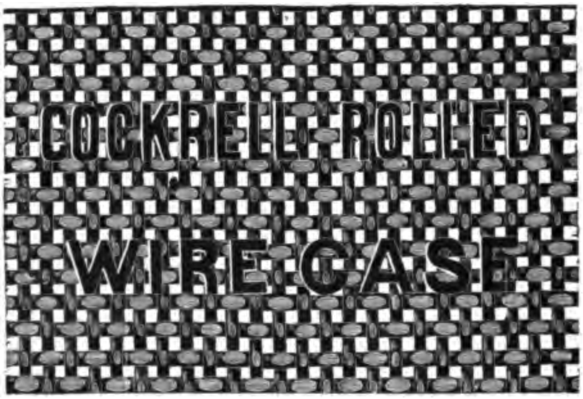
We manufacture a complete line of Grain Elevator Machinery, and have furnished many of the largest modern grain elevators with entire equipment. Among these are:

Counselman B. & C. - - - -	South Chicago, Ills.
Iowa Elevator - - - - - -	Peoria, Ills.
Minnesota Annex - - - -	Chicago.
Texas Star Flouring Mills - -	Galveston, Texas.
Illinois Central Railway Elevator -	New Orleans, La.
Hoosac "B" Fitchburg Railroad -	Boston.
C., St. P., M. & O. Elevator - -	Itaska, Minn.
Baltimore & Ohio Elevator - -	South Chicago, Ills.
Consolidated Elevator Co - -	Duluth, Minn.

For descriptions of

Clark Grain Shovels, see page - - - - - -	114
Car Pullers, see page - - - - - - - -	114
Belt Conveyors and Trippers, see pages - -	91 to 97
Rope Transmission Machinery, see pages -	207 to 213

Cockrell's Scouring Case



Is the best casing made. With 9,216 impinging edges in every square foot of surface, the dirt must be thoroughly rubbed off of the wheat, and with 9,216 openings for ventilation in every square foot of surface, every particle of dirt must be carried away by the draught as soon as scoured off. Presenting more than thirty times the number of scouring edges and ventilating openings of other cases, it must necessarily improve the color of the flour, especially the baker's.

The Cockrell scouring surface does not wear smooth and lose its efficiency in a few weeks, as other cases do, but the very nature of its construction is such that it retains its scouring qualities as long as the material lasts.

The Cockrell Case rubs the berry hard, *but does not break it or injure the bran coating.* In fact, it will *pay for itself* many times over in one year in the improved quality of the work done, while the other cases could not pay for themselves once in many years.

Over 4,800 Cases have been sold to date, all of which are giving the utmost satisfaction. Should the Case not prove what we claim it to be, we will cheerfully refund the price paid for it.

We make Cases to fit any machine, but to insure a perfect fit we need the circumference of your old case, and its height or length. Measure the ring or flang around which the case is fitted, so that we can determine the inside circumference of the case, or give us the outside circumference and the thickness, and we will make allowances accordingly.

REDUCED PRICES.	PER SQUARE FOOT.
Cylindrical Cases	$1 25
Conical Cases	1 50

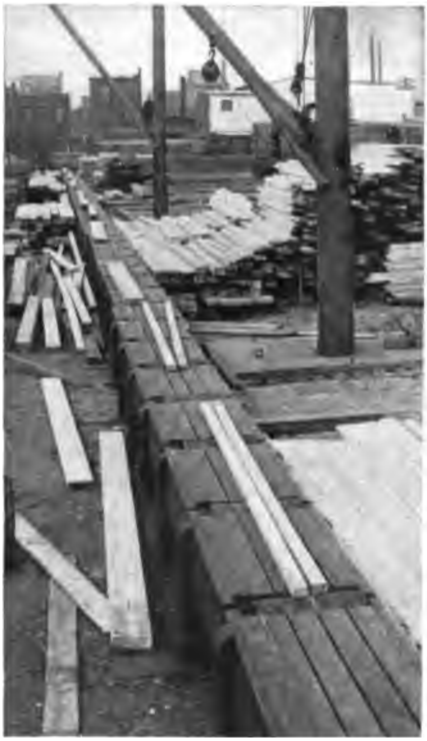
Figure this out and see at what small cost we can furnish you a new Case, or send above dimensions and we will give you a price complete.

Saw and Planing Mills, Pulp Mills, and Wood-Working Establishments

THE lumber trade and allied lines were the first to recognize the value of Link-Belting. For twenty-five years it has been in successful use, taking the logs from mill pond to log deck, transferring and conveying the finished product, and disposing of the offal.

Many of our appliances for this work are shown on other pages.

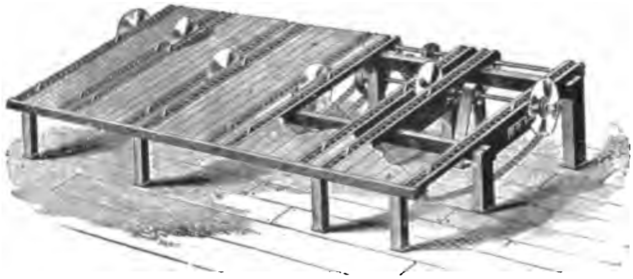
Further information will be furnished and prices quoted on request.



ABOVE CUT SHOWS ONE OF TWO LIVE ROLL LUMBER CONVEYORS, AGGREGATING 702 FEET IN LENGTH, INSTALLED 1903, AT THE SUSQUEHANNA AVENUE, PHILADELPHIA WHARF OF THE WM. A. LLOYD COMPANY.

Gang Slab Slasher

Width of Slasher, 10 Feet

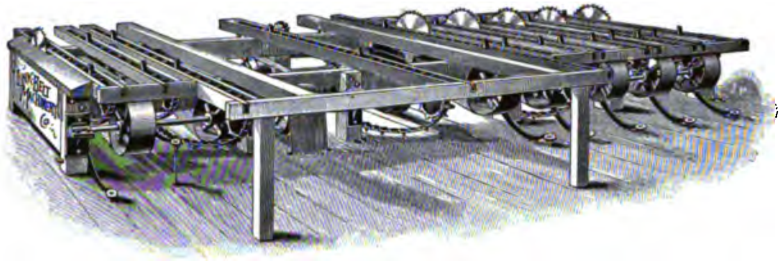


Price List

4-Saw, 16 feet long	$340.00
5-Saw, 16 feet long	360.00
6-Saw, 20 feet long	400.00
7-Saw, 24 feet long	450.00

Above prices do not include Saws or Leather Belts.

The Emery Lumber Trimmer



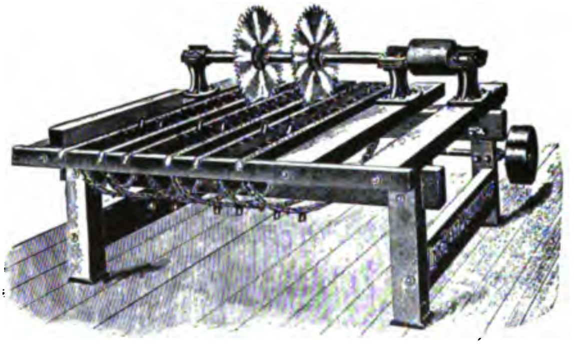
Price List

To trim 10, 12, 14, and 16 feet	$500.00	Subject to Discount.
" 10, 12, 14, 16, and 18 feet	550.00	
" 10, 12, 14, 16, 18, and 20 feet	600.00	
" 12, 14, and 16 feet	450.00	
" 12, 14, 16, and 18 feet	500.00	
" 12, 14, 16, 18, and 20 feet	550.00	

Add $50 per each additional Saw.

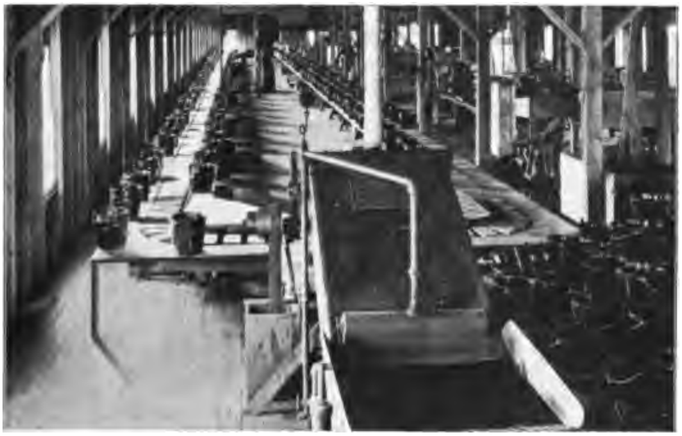
(These prices do not include Saws or Leather Belts.)

Two-Saw Four-Foot Slasher, with Overhead Saws



This Slasher or Wood Cutter embodies the essential safety features of Gang Slab Slashers, also the saw guides and carrying chains with the spur links. The saws, which are on an overhead arbor, are 26 inches in diameter and are placed 16 inches apart. Price, $250, without saws or leather belts.

We make various modifications of this machine, with saws either above or below the table, using from two to four saws, and placing their centers at distances from 12 inches to 16 inches apart. State your requirements and write for price.



SHOWING LINK-BELT PATENT TRANSFER AND PEELING TABLE, J. T. STAFF PACKING CO., CAYUGA, IND. TRANSFER WILL ACCOMMODATE 200 PEELERS.

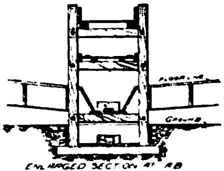
Fruit, Vegetable, and Fish Canneries

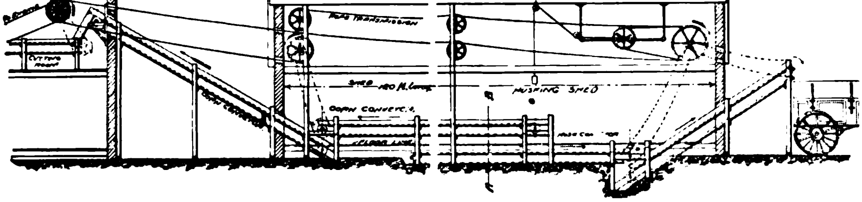
WE have equipped many of the largest canning houses with our sytem of elevators and conveyors for the rapid and economical transportation of corn, cobs, husks, cans, boxes, fish, fruit, green vegetables, pea vines, tomato slops, meats, etc.

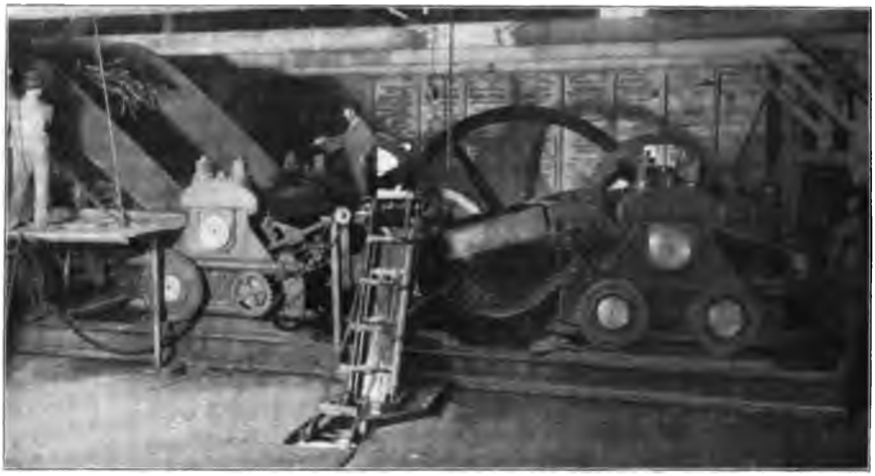
The sketch below shows a system of conveyors admirably adapted for handling corn and husks. We have installed many outfits of this general character, with excellent results in all cases.

The Ear-Corn Conveyor is of sufficient width to facilitate the sorting of the corn before it passes into the inclined conveyor, which carries it to the cutting-room. Underneath the former conveyor is shown a Husk Conveyor, which dumps the husks into pile or wagon. On right hand side may be seen a cross section of same conveyors, together with floor of husking shed.

This system of Conveyors is driven by a manila rope transmission, which is especially adapted for carrying power from one building to another located at a distance.







"LINK-BELT" JUICE STRAINER AND TRASH ELEVATOR

Cane and Beet Sugar Refineries and Plantations

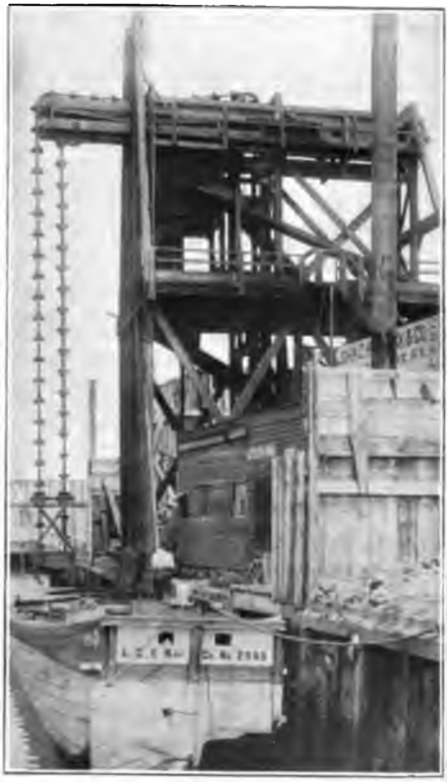
THE adoption of modern methods in the handling of sugar cane and its products from field to refinery has greatly simplified and cheapened the cost of producing sugar.

By the use of Link-Belt appliances, the cane is taken from the field by Cane Transfer and Storage Railway, delivered to Cane Carrier Feeder in storage shed, transferred to rolls, and the residue or bagasse finally discharged in boiler-room for fuel, or conducted to auxiliary plants for the manufacture of paper, etc.

Among the special machines furnished by us are the following:

Cane Transfers and Storage Railways.
Traveling Cranes for Unloading Cars.
Inclined Feeders to Cane Carriers.
Cane, Intermediate, and Bagasse Carriers.
Link-Belt Juice Strainers and Trash Elevators.
Automatic Bagasse Boiler Feeders.
Sugar Conveyors, Elevators, and Fans.
Cook & Reid Granulators.
Baldwin Speedy Sugar Shakers.

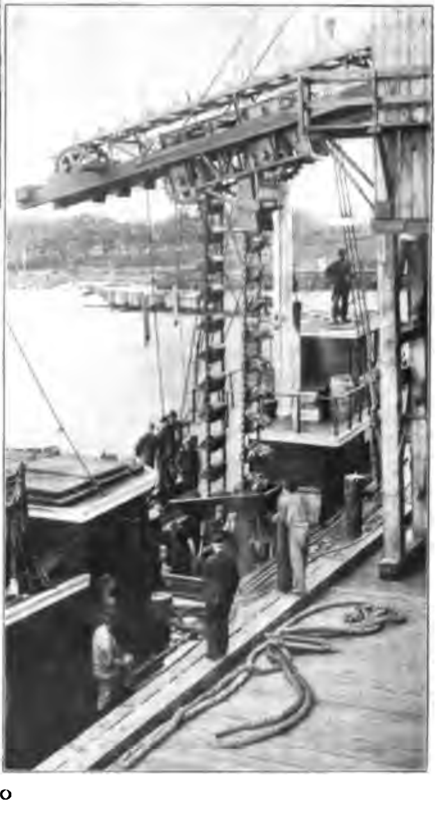
Link-Belt Marine or Dock Legs



LINK-BELT Marine or Dock Legs for elevating grain, sized coal, and many other materials in bulk or package from holds of vessels, designed and built, in all cases, to suit local conditions.

They are usually provided with vertical and horizontal adjustment to suit position and depth of hold and can be mounted on self-contained movable structures.

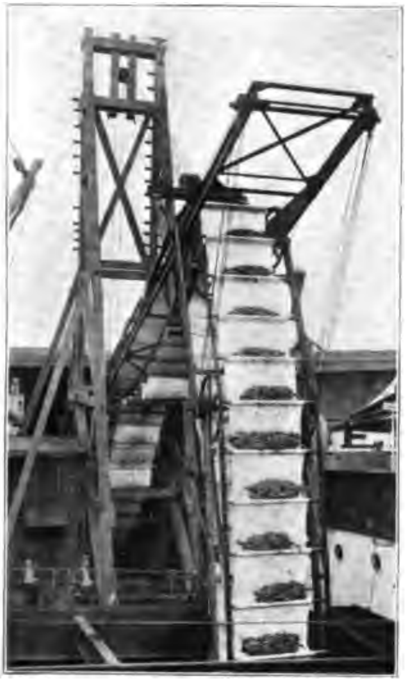
The photograph above shows a Dock Leg installed for John C. Hancock & Co., Philadelphia, hoisting anthracite coal from canal boats, while the one below shows a Dock Leg unloading fish from a Menhaden steamer of the Fisheries Company, Promised Land, N. Y.



Unless the character of the material is such that it readily yields to the dredging action of the buckets, it is always necessary to load the carrier by hand in work of this character.

Banana Carriers

For Loading and Unloading Vessels

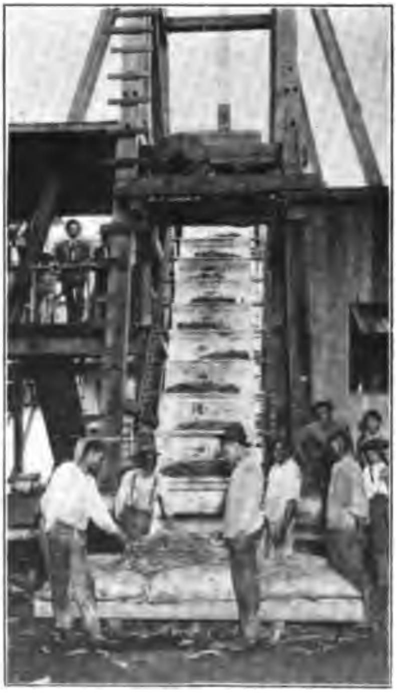


THE carrier here shown was installed for the United Fruit Company in 1903, at the I. C. R'y. Co.'s Wharf, Mobile, Ala., under the patent rights of Messrs. Edleston & Harris.

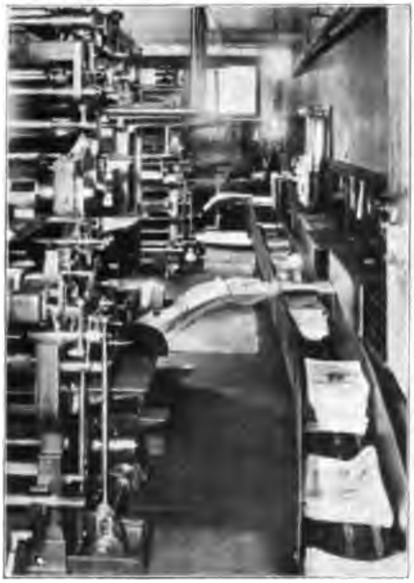
The machinery consists of a canvas apron, attached to cross-bars between two chains in such a manner as to form pockets into which the bunches of bananas are placed, as shown. These pockets automatically adjust themselves to the direction of travel and handle fruit without bruising, or breaking the bunches.

It is adjustable to depth of hold and height of tide, and has effected immense economy not only in time and labor, but in loss of fruit from injury in handling.

Photograph above shows carrier receiving bananas in hold of vessels, while the one below shows it depositing same on dock.



Newspaper, Printing Establishments, and Book Publishing Houses

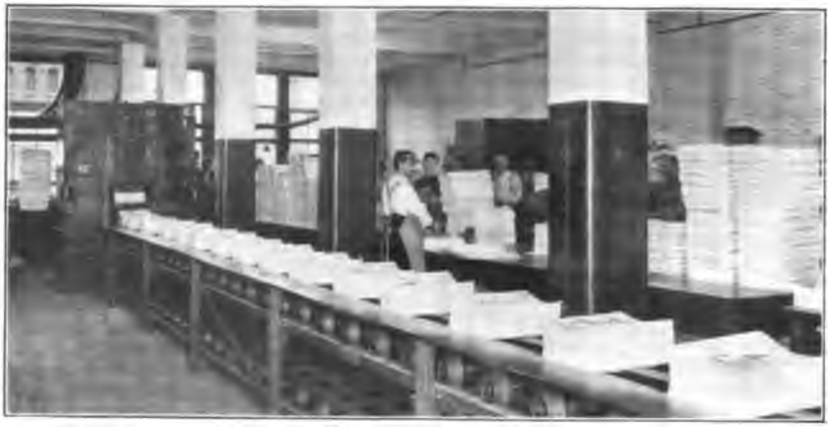


NEWSPAPER CONVEYOR 170 FEET CENTERS, INSTALLED IN 1902, FOR THE BULLETIN CO., PHILADELPHIA. IT DELIVERS 16 PAGE PAPERS FROM 7 PRESSES TO DISTRIBUTING DEPARTMENT, AT THE RATE OF 48,000 PER HOUR

OUR machines for receiving printed matter in press rooms, elevating, conveying, counting, and distribing same in mailing or other departments, not only effects great economy in space and labor, but provides a rapid, uniform, and continuous movement of papers, which greatly expedites the handling of large editions.

We have also designed and installed successful and economical appliances for handling rolls of paper, package stock, books, and periodicals; also for distributing signatures in bindery departments, books and papers in counting houses, etc.

Booklet No. 51, describing our methods and illustrated by photographs and drawings of many successful installations, will be mailed on request.



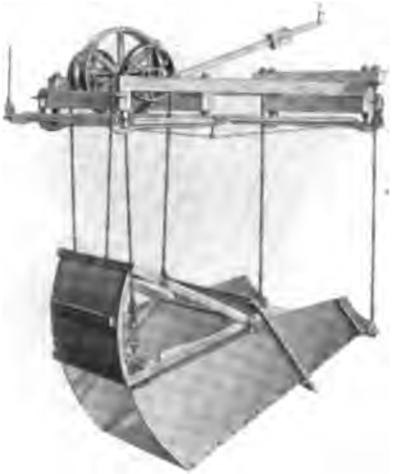
PHOTOGRAPH SHOWING TWO SYSTEMS OF ELEVATORS AND CARRIERS FOR RECEIVING PAPERS IN PRESS ROOM AND DESTRIBUTING SAME IN MAILING DEPARTMENT OF THE CURTIS PUBLISHING COMPANY, PHILADELPHIA ONE SYSTEM HANDLES THE LADIES' HOME JOURNAL, AND THE OTHER HANDLES THE SATURDAY EVENING POST.

COAL TIPPLE MINE NO. 2, SPRING VALLEY COAL CO., SPRING VALLEY, ILL. EQUIPPED WITH LINK-BELT SHAKING SCREENS. GRAVITY OPERATED WEIGH BOX AND VICTOR BOX CAR LOADER.

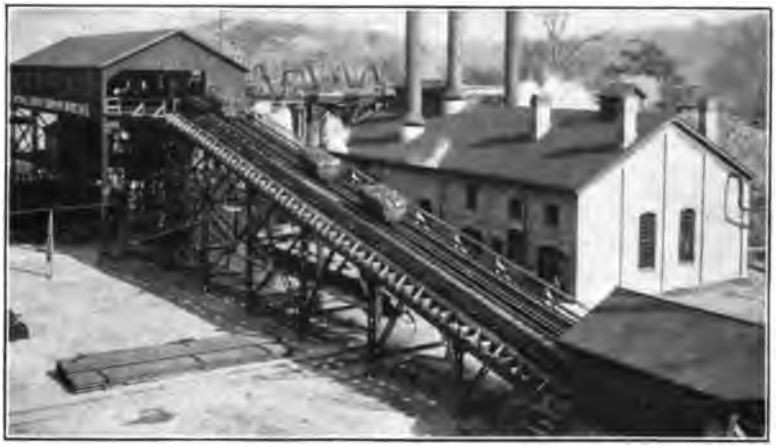
"Link-Belt" Coal Tipples, Screens, Weigh Baskets, Etc.

FOR full information concerning Link-Belt Coal Tipples, Screens, Weigh Boxes, etc., see our Catalog No. 41, descriptive of Link-Belt methods applied in the operation of coal and metal mines, smelters, etc.

Our Shaking Screens are constructed entirely of steel, and in such a manner that the screen plates can be changed or renewed without affecting the integrity of the framework. They possess great strength and stiffness, and are so actuated as to insure the highest screening efficiency without imparting serious vibrations to the tipple structure.



CUT SHOWING ONE TYPE OF LINK BELT GRAVITY OPERATED WEIGH BOX. WE MAKE THESE IN SEVERAL FORMS OPERATED EITHER BY STEAM OR GRAVITY.



375 FT. UP HAUL AND 325 FT. DOWN HAUL INSTALLED FOR NATIONAL MINING CO., SYGAN, PA. CAPACITY 4 CARS PER MINUTE. GROSS WEIGHT OF EACH 5,700 LBS.

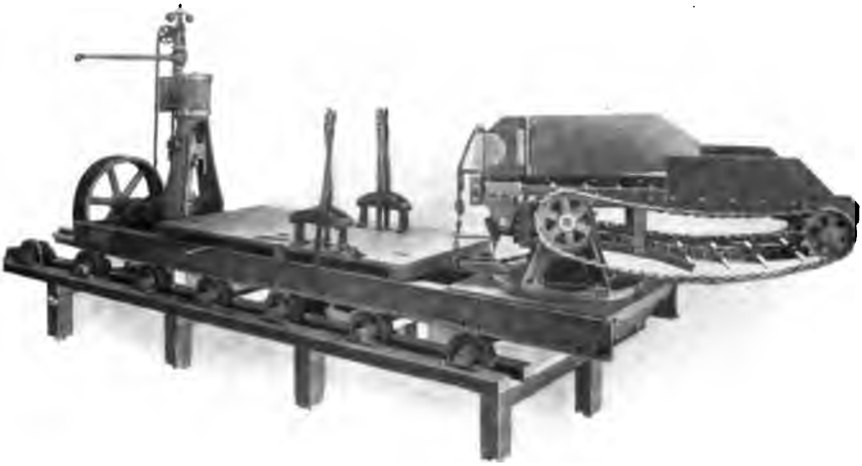
"Link-Belt" Car Hauls

WE design and build Car Hauls of any capacity and to suit any work or conditions. Our standard Car Haul automatically engages the cars at foot of grade, elevates them to the tipple and returns the empties.

It accomplishes the work rapidly, systematically, without severe impact, and without attending labor. Booklet No. 45 describing our methods and many interesting installations, mailed on request.

The cut on right is from photograph showing part of a very interesting and efficient system of Car Hauls installed by us for the Universal Gas Company, Chicago, where coal and coke cars are carried a total of 720 feet, making several horizontal turns and ascending and descending grades. A full description of this is contained in booklet above referred to.

The Victor Box Car Loader



A thoroughly perfected machine both in design and construction.

It has a larger capacity, is more durable and costs less for repairs and maintenance than any other machine of its kind on the market.

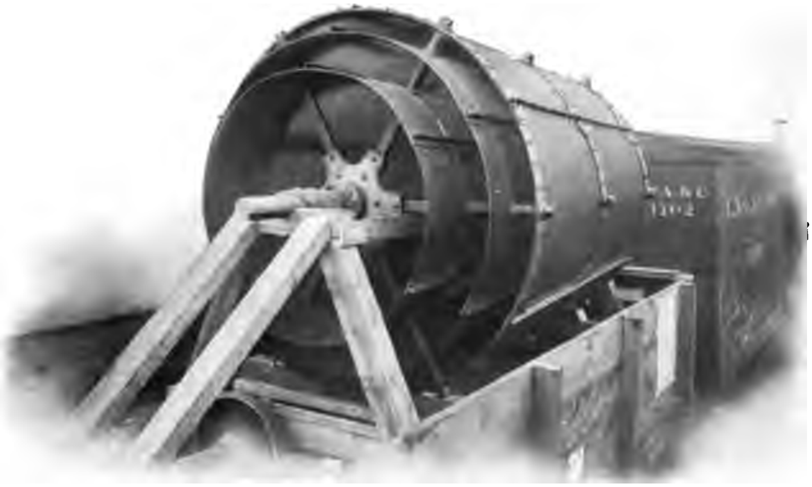
It is driven by either steam or electricity.

It will load coal of any size from bar or shaking screens and will fill the largest car far beyond its rated capacity without hand trimming and without the use of grain doors.

It is under absolute control of the operator at all times, and handles the coal without the excessive breakage which occurs when a fixed angle of discharge is maintained or a very high speed is necessary, as with loaders employing short aprons.

We have easily loaded 30 ton cars in 6 minutes, and if coal could be dumped or cars handled with sufficient speed, a single machine should load from 2,500 to 3,000 tons in 10 hours.

Write for full descriptive Catalog No. 41.



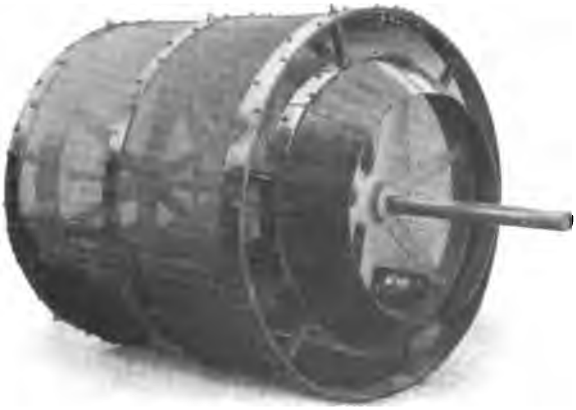
"Link-Belt" Revolving Screens

Single or Multiple Jacketed

ARE made in all sizes, round or hexagonal, and with screening surfaces of wire cloth or perforated plate

Our Multiple-Jacketed Screens have Screening surfaces laid on in panels, any one of which can be easily removed and renewed without taking the screen apart.

When the nature of the material requires, they also have internal lifting blades to effect a cleaner separation, and larger sizes are stiffened by truss rods.



We design and build screens to suit any conditions, and will submit plans and estimates for consideration.

1000-TON "LINK-BELT" WASHERY, DESIGNED AND BUILT COMPLETE BY US FOR THE SPRING VALLEY COAL CO., DALZELL, ILL.

Washing Bituminous Coals for Coke or Fuel

By The "Link-Belt," "Luhrig," and "New Century" Processes.

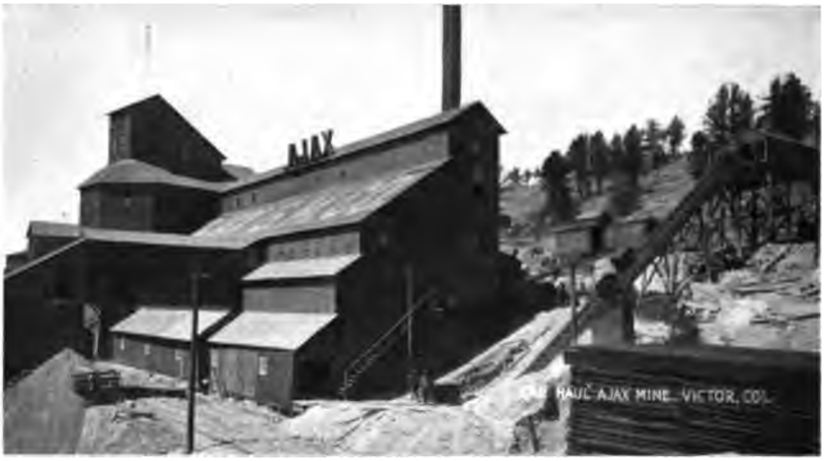
WE were among the first to accomplish the successful and profitable washing of bituminous coals, and during the past 13 years have designed and built the largest and most successful coal washing plants in America.

Our long experience qualifies us to design and construct washeries for the treatment of coals, based on analyses and washing tests, conducted by our Engineering Department, and to fully guarantee both the efficiency of our machinery and the results to be obtained.

While each body of coal presents a distinct washing proposition, the most thorough and economical separations are effected by the Link-Belt, Luhrig, or New Century processes, which we unqualifiedly recommend in all cases. We are, however, familiar with every system employed to any extent in this country, and will furnish any type of washery desired, if conditions are favorable to its employment.

We will, without charge, examine and test your coal and submit plans and estimates for consideration.

Our coal washing catalogue No. 43, contains much information of interest and value to all concerned in the economical separation of coal from its impurities.

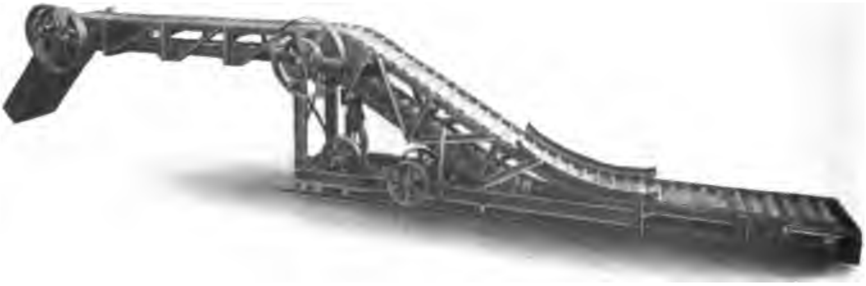


LINK-BELT CAR HAUL
AJAX MINING CO., VICTOR, COLO. THIS HAUL IS 140-FEET CENTERS, THE ANGLE OF ELEVATION BEING 45 DEGREES

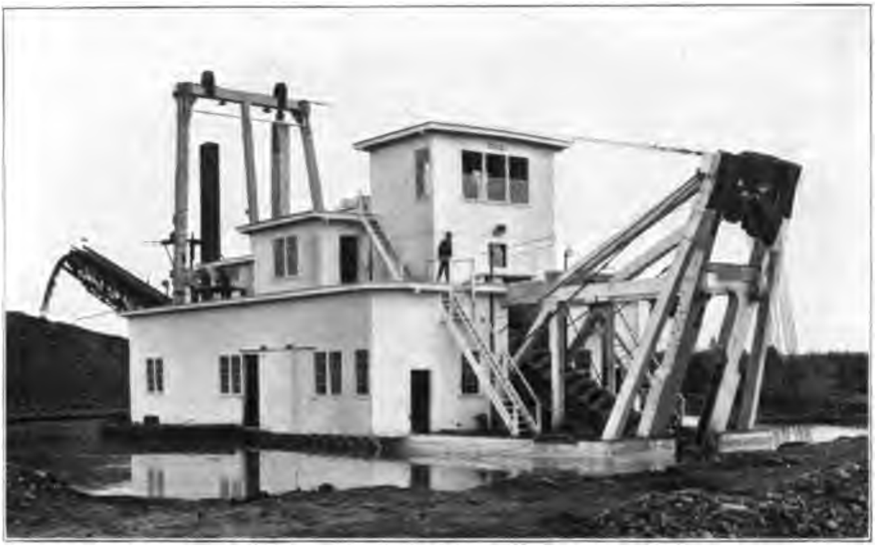
Ore and Metal Mines

LINK-BELT Elevators and Carriers, for handling ores, stone, concentrates, sand, gravel, tailings, etc., are so designed and constructed as to provide the highest degree of economy, durability, and efficiency. Our belt conveyors, equipped with ball-bearing rolls, as illustrated on page 91, are especially effective in work of this character.

We also furnish picking tables, car hauls, automatic ore loaders, steel cars, hoppers, bins, bin gates, etc., more fully illustrated and described in Special Catalog No. 41, mailed on request.



AUTOMATIC DEVICE FOR LOADING ORE BUILT FOR THE EMPIRE TUNNEL CO., GEORGETOWN, COLORADO



FIVE CUBIC FOOT GOLD DREDGE. "EL ORE NO. 1," DESIGNED AND BUILT FOR THE EL ORO DREDGING CO., OROVILLE, CAL.

Gold Dredging and Placer Mining Machinery

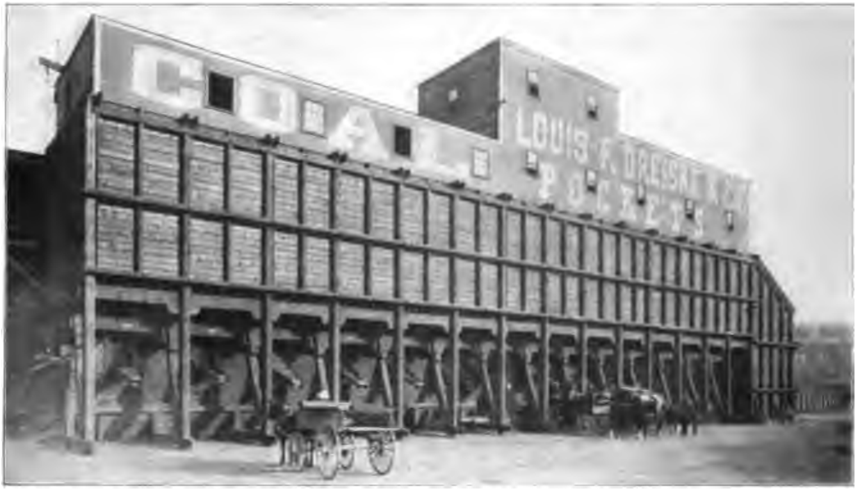
WE shall be pleased to submit estimates for complete Placer Mining Dredges of the bucket elevator type or for the complete machinery or portions of the machinery.

Our dredges are designed throughout to be of the most substantial construction and only the best of material is used; our effort being to furnish a dredge where there will be the minimum loss of time from repairs and renewals rather than a machine where quality is sacrificed to get a low initial cost.

We also design and build

Revolving Screens, Tailing Stackers, Elevators, Conveyors, and Carriers

of highest efficiency for handling sand, dirt, gravel, etc.



RETAIL COAL POCKET—LOUIS F. DREISKE & CO. CHICAGO
A SINGLE GRAVITY DISCHARGE ELEVATOR-CONVEYOR DELIVERS COAL FROM CARS BOTH TO POCKETS AND GROUND STORAGE AND ALSO DELIVERS FROM GROUND STORAGE TO POCKETS.

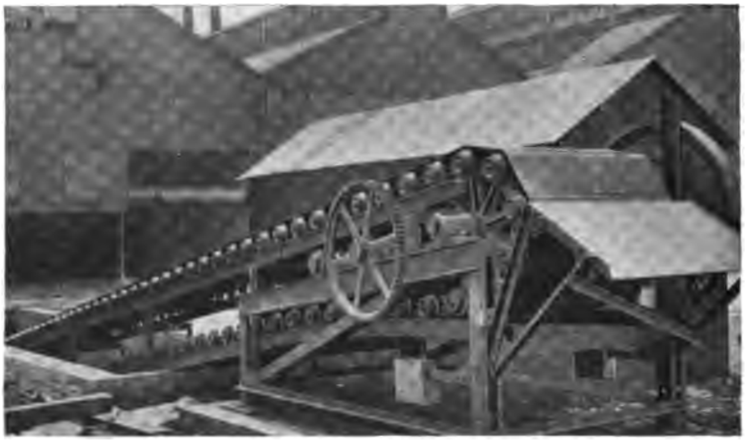
Wholesale and Retail Coal Yards

WHEN coal is stored on the ground and handled by hand, it costs about ten cents per ton to shovel same from cars to yard, and another ten cents to shovel from ground storage to wagons. When necessary to wheel the coal in barrows a considerable distance or to screen same by hand, these handling charges are often much greater.

By the pocket system coal received in self-cleaning cars is often handled at a total cost of less than one cent and rarely more than one and three-quarters cents per ton, including the processes of screening and delivery to wagons. When it is necessary to empty cars, by hand or power shovels, the additional cost of doing so must, of course, be added.

The pocket system provides greatly increased storage facilities and permits a large stock of coal to be carried where ground space is limited, thereby affording protection against strikes or delays to traffic and enabling the dealer to increase his profits by stocking up when prices are low and holding for fall trade. It also enables him to fill orders promptly, thereby giving him a standing in the community and permanently increasing his trade at times when other dealers suffer from a temporary shortage in coal supply. Many other distinct advantages in economy and utility result, the nature and extent of which depend upon local conditions and the efficiency of the equipment employed.

Descriptive booklet No. 47 mailed on request.

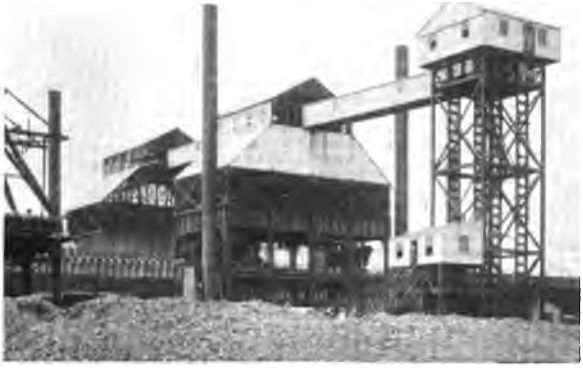


221-FOOT CENTRES STEEL APRON CARRIER
INSTALLED FOR THE UNION STEEL COMPANY, DONORA, PA. FOR HANDLING BUNDLES OF STEEL RODS.

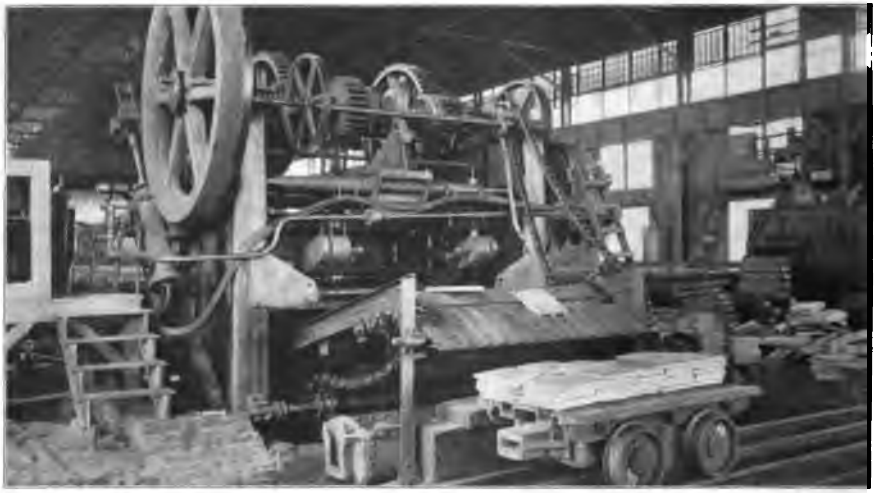
Steel Works, Rolling Mills, Wire and Rod Mills, Tube Mills, Blast Furnaces, Foundries, Glass Works, etc.

AFFORD many opportunities for economizing space, increasing output, and reducing cost of production by the application of our methods in the continuous handling of stone, ores, coal, coke, slag, bars, plates, bundles of rods or wire, hoops, spikes, scale, pig iron, skelp iron, foundry sand, glass sand, and other materials, hot or cold.

Our cupola charging appliances, Flask Conveyors, Billet Conveyors, Reciprocating Sand Conveyors, Lehr Conveyors, and Conveyors for Pipe Cooling and Straightening tables are productive of great economy and utility.



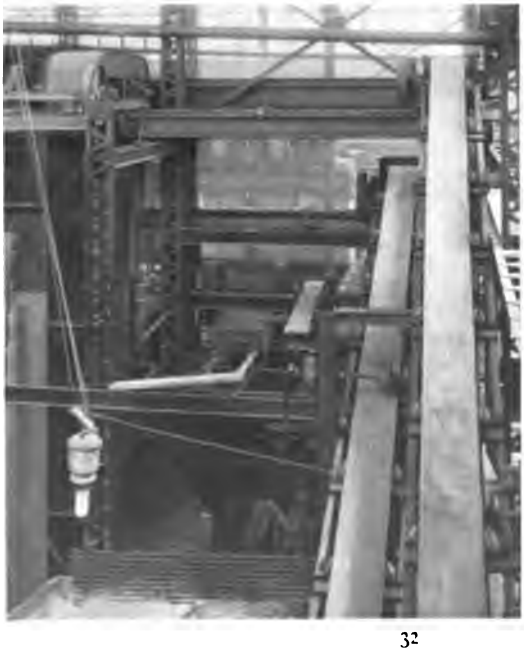
PARTIAL VIEW OF COAL HANDLING SYSTEM OF MARYLAND STEEL CO., SPARROW'S POINT, MD., 250 TONS OF COAL PER HOUR ARE RECEIVED, CRUSHED, ELEVATED, AND DELIVERED TO TWO OVERHEAD BINS FOR DELIVERY TO COKE OVENS.



BILLET CONVEYOR
BETHLEHEM STEEL WORKS, BETHLEHEM, PA. RECEIVES BILLETS FROM SHEARS AND DELIVERS THEM TO LIVE ROLLS FOR DISTRIBUTION.

Handling Sand

CUT below is from photograph showing two inclined Belt Conveyors, two Reciprocating Conveyors, and one of several Elevators handling sand in the foundry of the Latrobe Steel & Coupler Company, Melrose Park, Ills. Our Reciprocating Conveyors with other appliances are also in successful operation for The National Malleable Castings Co., Chicago, Ill., and Chester, Pa., The McCormick Harvesting Machine Co., Chicago, The National Tube Co., and Kewanee Boiler Co., Kewanee, Ills., and others.



The Link-Belt Reciprocating Conveyor

Patented

IT is practically noiseless in operation, and an exceedingly efficient machine for handling large quantities of sand or other materials of a highly abrasive character. The flights are hinged to a rigid frame, extending the entire length of the conveyor. This frame travels on plain or absorbent rollers, and has a movement of from 24 to 28 inches forward and return. The working parts are few and so arranged as to avoid direct contact with the material handled.

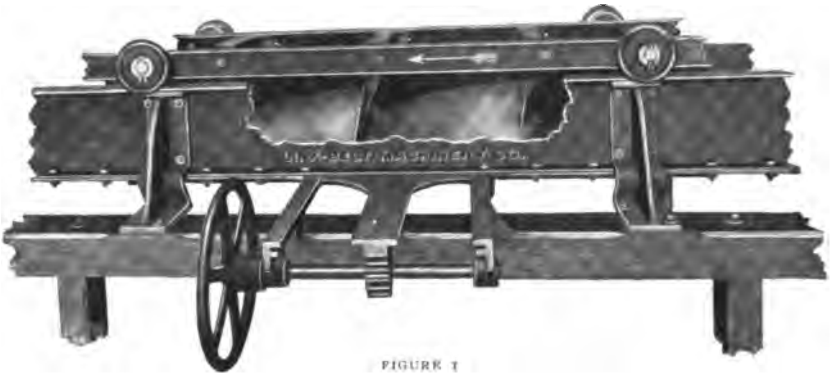


FIGURE 1

Figure 1 shows position of flight as it moves forward, propelling the material.

Note.—The discharge gate at this point is closed and the material is being carried beyond.

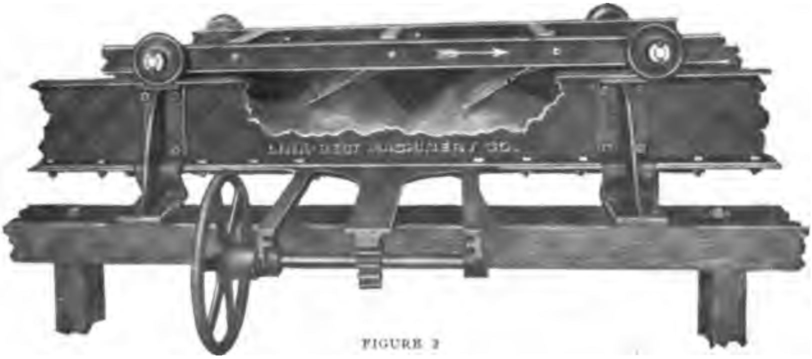
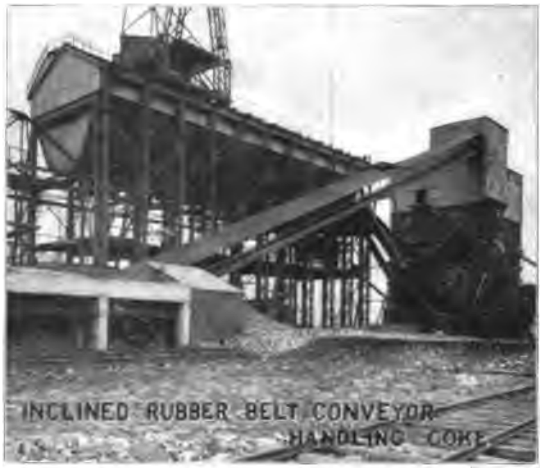


FIGURE 2

When the forward movement is complete the flight drops its load and feathering back, as shown by Figure 2, picks up the load dropped by the succeeding flight and again moves forward, repeating the operation.

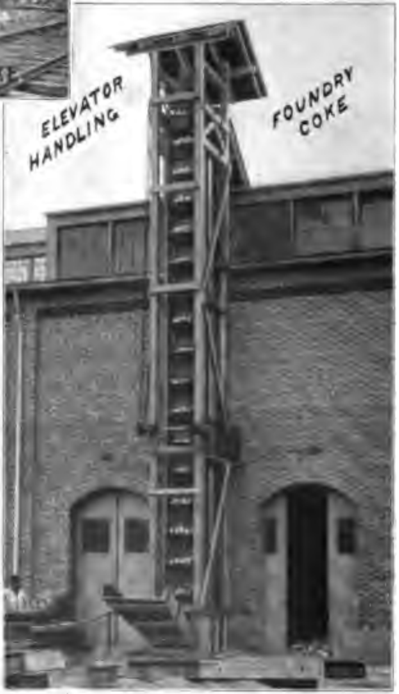
Built in any length and of any size or capacity.

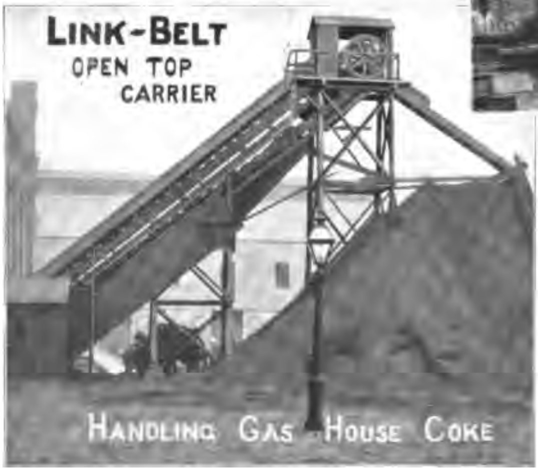


Handling Coke

WE design and build machinery of highest efficiency for elevating, conveying, crushing, screening, and storing coke in any quantity and to suit any conditions.

We have equipped many of the largest bi-product coke plants, gas houses, iron furnaces, foundries, and steel works throughout the country with machinery of this character, and will furnish full information and descriptive matter on request. Many types of elevators and carriers suitable for this work are illustrated on subsequent pages.





PLANT OF THE GERMAN-AMERICAN PORTLAND CEMENT COMPANY, LA SALLE, ILL., EQUIPPED WITH LINK-BELT LABOR-SAVING APPLIANCES THROUGHOUT.

Cement Mills

IN no industry is the employment of labor-saving machinery more essential, nor the durability of such equipment of more vital importance than in the manufacture of cement.

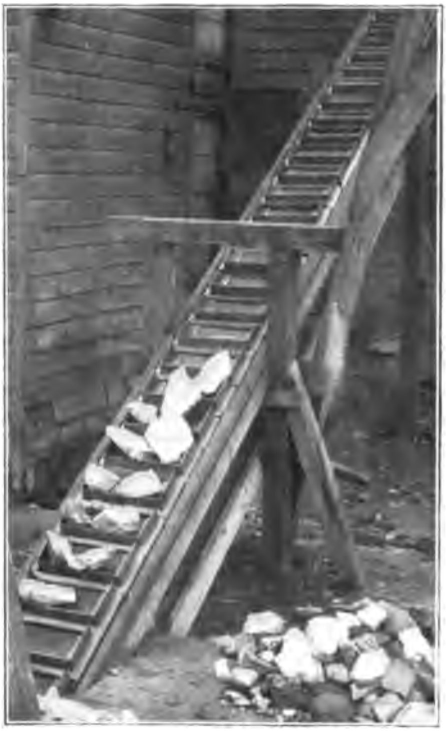
We design elevating and conveying machinery of the highest type for handling cement at every stage of its manufacture, and have equipped many of the largest and most complete mills throughout the country.

Hot and Cold Clinker Conveyors, Belt Conveyors, Screw Conveyors, Coal Crushers, Screens, etc., are shown on subsequent pages.

Full information and descriptive matter furnished on application.

PLANT OF THE ST. LOUIS PORTLAND CEMENT CO., ST. LOUIS, MO., EQUIPPED BY US WITH ELEVATING, CONVEYING, AND OTHER MACHINERY.

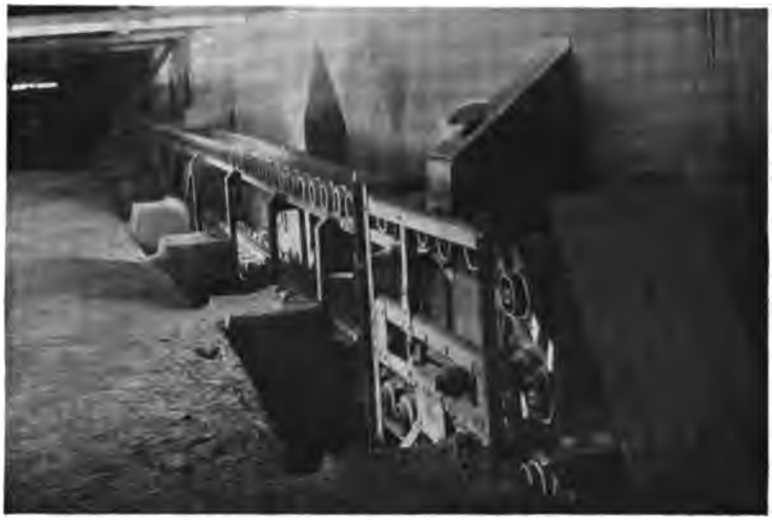
Stone Crushing Plants, Brick Yards, Tile Works, Etc.



ELEVATORS, Belt Conveyors, and Carriers for handling lump or crushed stone, wet or dry clay, brick, tile, etc.

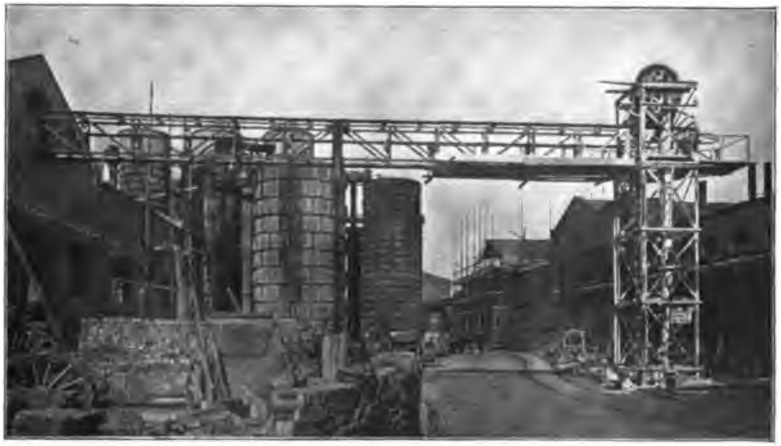
The type of carrier shown on left is extensively employed for handling lump stone. It consists of a series of heavy wood blocks mounted on rollers, and having 4-inch angle irons secured to three sides, forming buckets, as indicated. It is constructed for rough and ready service, and to resist impact from heavy lumps.

The Continuous Bucket Elevator shown on right was installed for the Glen Mills Crushed Stone Co., Glen Mills, Penn. It is one of the several standard types employed for handling crushed stone, which together with Belt Elevators, and Belt Conveyors equipped with Ball Bearing Rolls, are shown in other parts of this book.



CAST IRON PAN CONVEYOR

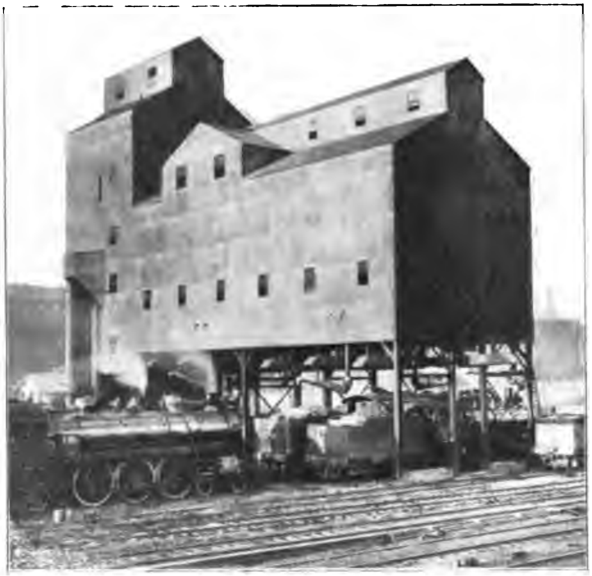
HANDLING HOT MATERIAL FROM COOLERS AT PLANT OF THE GERMAN AMERICAN PORTLAND CEMENT COMPANY, OGLESBY, ILL. OTHER TYPES OF MACHINERY FOR HANDLING HOT CEMENT CLINKERS, HOT ROASTED ORES, ASHES AND OTHER MATERIALS OF SIMILAR CHARACTER ARE SHOWN ON PAGES 49, 53, AND 62.



HANDLING LIME

MACHINERY FOR RECEIVING, ELEVATING, AND DISTRIBUTING LUMP LIME IN THE PURIFIER HOUSE OF THE FULHAM GAS WORKS, FULHAM, ENGLAND, DESIGNED AND INSTALLED BY OUR ENGLISH CONNECTION, THE CHAIN BELT ENGINEERING CO., DERBY, ENGLAND.

Mechanical Locomotive Coaling Stations

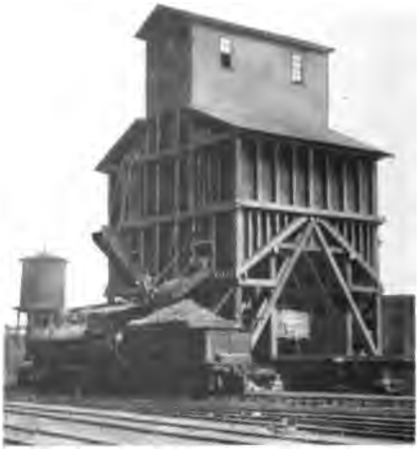


HAVE become established features of modern railway operation. Owing to the extent and importance of our work in this field, we have issued Book No. 36, containing a very comprehensive description of Modern Methods applied to the handling of locomotive coal and cinders and railway freight.

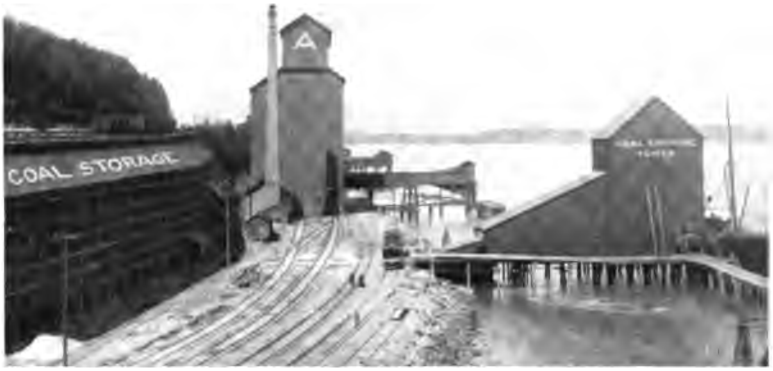
A copy of this book will be mailed on request of railway officials or others prominently connected with railway engineering or operating departments.

The above is from a photograph of the mechanical coal and cinder handling station designed and equipped by us for the Terminal Railway Association of St. Louis. At this station seven locomotives take coal, sand, and water, and twenty-one discharge cinders simultaneously. Four hundred locomotives are handled per day.

One thousand tons of coal with the necessary sand and water supply is carried by this structure, which is of steel throughout.



Coaling station shown below has a capacity of 500 tons, and was erected in 1900 for the B. & O. Ry. Co. at Cincinnati. During the four years of its continuous operation, the entire cost of repairs has amounted to less than $25.00.



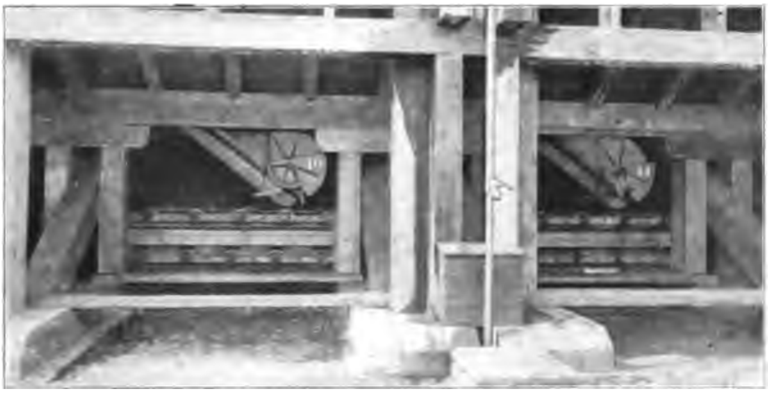
SHIP-LOADING PLANT

NORTHERN PACIFIC R'Y, TACOMA, WASH. COAL IS TAKEN FROM BUNKERS SHOWN AT LEFT, BY LINK-BELT CARRIERS, AND DELIVERED INTO CARRIER AT RIGHT ANGLES RUNNING OUT TO SEA. THIS LATTER CONVEYOR IS CARRIED BY HINGED TRUSS. NORMAL CAPACITY 700 TONS PER HOUR.

Ship-Loading Plants

WE design and install complete equipments for transporting coal, ores, phosphate, stone, cement or other materials from cars to vessels or vessels to cars, with or without intermediate storage, and have equipped many of the largest transportation companies in the world with machinery of this character. Special Catalog No. 60 describing the methods employed by us in this field, and containing photographs and drawings of important installations will be mailed on request.

For information concerning Link-Belt methods applied to the handling of Miscellaneous Freight, in Steamship docks and Warehouses, write for Special Catalog No. 35.



SHOWING LINK-BELT OPEN-TOP CARRIER, RECEIVING COAL FROM STORAGE BUNKERS, AT PLANT OF NORTHERN PACIFIC R'Y CO. ILLUSTRATED ABOVE. THIS CONVEYOR HAS LOADED COAL AT THE RATE OF 12 TONS PER MINUTE.

The Dodge System of Coal Storage

THE Link-Belt Companies have erected more and larger Coal Handling Machinery than any other company in the world. They have built all of the machinery for the plants of the Dodge System. If interested, send for special catalog.

Complete plants for stocking and reloading coal in any quantity, with greater speed, less breakage, and at lower cost than by any other known method.

Storing Anthracite Coal

The machinery under construction, installed, and in use to date, provides for the storage of 3,265,000 tons, as follows:

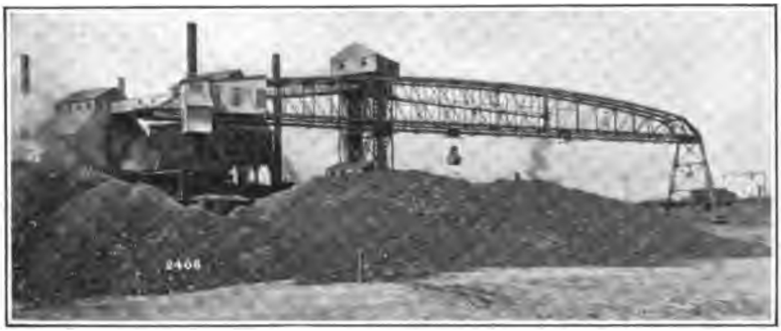
		TONS
P. & R. Ry. Co.	Abrams, Pa.	480,000
P. & R. Ry. Co.	Port Richmond, Phila., Pa.	180,000
P. R. R. Co.	South Amboy, N. J.	100,000
P. R. R. Co.	South Amboy, N. J. (2d plant)	90,000
D. & H. Co.	Carbondale, Pa.	150,000
D. & H. Co.	Delanson, N. Y.	120,000
C. R. R. of N. J.	Hampton Jct., N. J.	180,000
C. R. R. of N. J.	Salem, Mass.	80,000
C. R. R. of N. J.	Hampton, Jct., N. J., extension	300,000
L. V. Coal Co.	South Plainfield, N. J.	310,000
L. V. Coal Co.	West Superior, Wis.	100,000
G. L. & C. Co.	London, England	30,000
Erie R. R.	Buffalo, N. Y.	105,000
Erie R. R.	Hammond, Ind.	60,000
Erie R. R.	Rochelle Park, N. J.	200,000
Penna. Coal Co.	Newberg, N. Y.	80,000
D. L. & W. R. R. Co.	Scranton, Pa.	100,000
N. Y. O. & W. Ry. Co.	Middletown, N. Y.	120,000
Susquehanna Coal Co.	McClellan, Pa.	210,000
Susquehanna Coal Co.	McClellan, Pa. (extension)	170,000
N. Y. Edison Co.	Shady Side, N. J.	100,000
	Total	3,265,000

AMONG the larger plants built by The Dodge Coal Storage Company, and equipped with our machinery for

Storing Bituminous Coal

are the following:

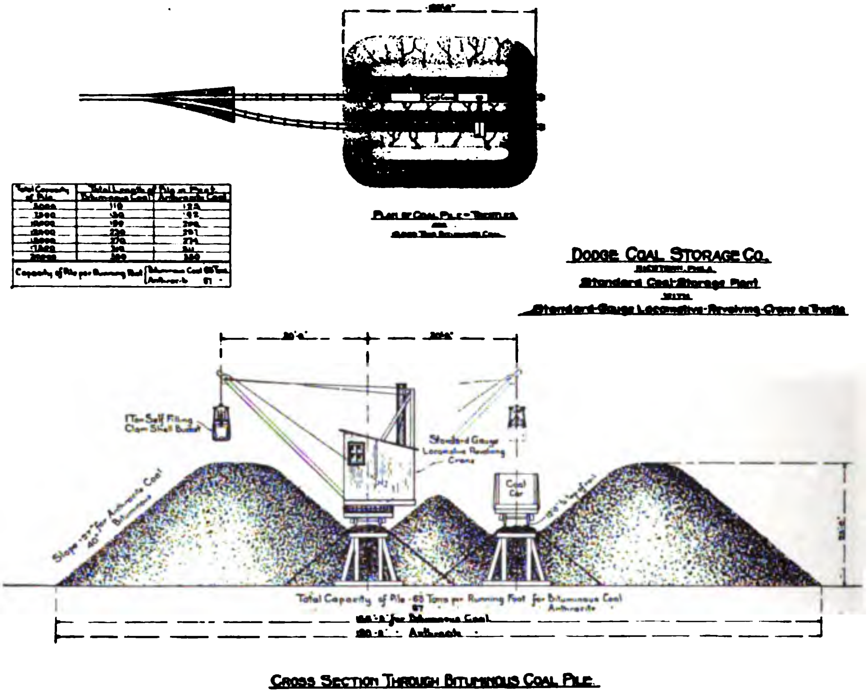
		TONS
N. Y. Edison Co.	Shady Side, N. J.	50,000
N. Y. C. & H. R. R. R. Co.	Dewitt, N. Y.	50,000
Maryland Steel Co.	Sparrow's Point, Md.	50,000
Riverside Iron Works	Wheeling, W. Va.	4,000
Pennsylvania Steel Co.	Lebanon, Pa.	50,000
Lackawanna Steel Co.	Buffalo, N. Y.	40,000
Lackawanna Iron & Steel Co.	Lebanon, Pa.	40.000
United Coke & Gas Co.	Camden, N. J.	10,000
United Gas Improvement Co.	Philadelphia, Pa.	10,000
Sharon Steel Co.	Sharon, Pa.	40,000
Boston Elevated Railway Co.	Charlestown, Mass.	3,000
		347,000



BITUMINOUS COAL STORAGE PLANT

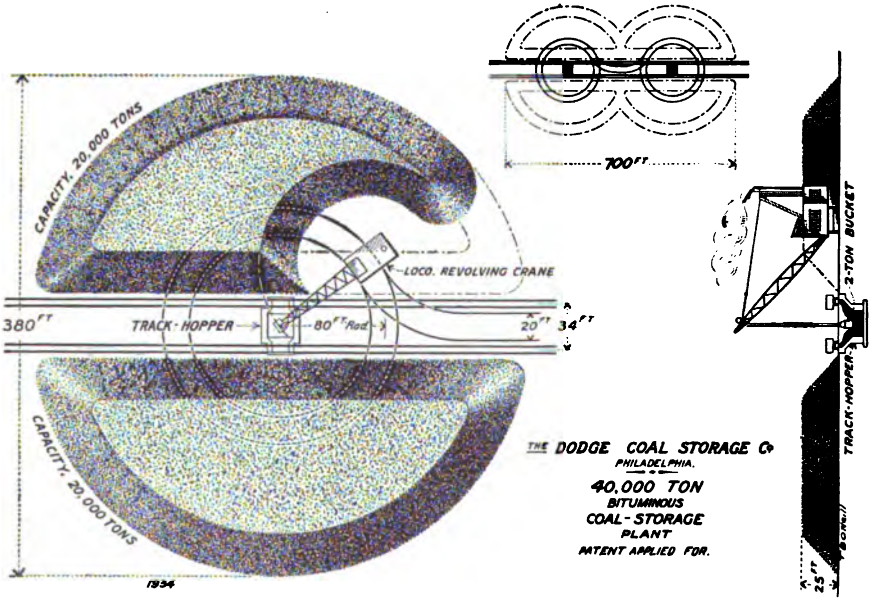
MARYLAND STEEL COMPANY, SPARROW'S POINT, MD.

THE BRIDGE (280-FOOT SPAN) IS PIVOTED AT THE RIGHT HAND END AND CARRIES A 2-TON BUCKET OPERATED BY ELECTRIC HOIST. COAL IS TAKEN FROM CARS TO STORAGE AND FROM STORAGE GROUND TO A CONVEYOR SYSTEM AT THE RATE OF 100 TONS PER HOUR. STORAGE CAPACITY IS 50,000 TONS IN A SEMICIRCLE.


DODGE COAL STORAGE CO.
Standard Coal Storage Plant
with
Standard Gauge Locomotive Revolving Crane on Trestle
Standard Gauge Locomotive Revolving Crane
Coal Car
Cross Section Through Bituminous Coal Pile.

BITUMINOUS COAL STORAGE, WITH PARALLEL TRESTLES AND REVOLVING LOCOMOTIVE CRANE

THIS SYSTEM IS LOW IN FIRST COST, AS WELL AS IN COST OF HANDLING, AND THE CRANE CAN BE PUT TO OTHER USES WHEN NOT NEEDED FOR STORING OR RELOADING



BITUMINOUS COAL STORAGE. CIRCULAR PILE WITH REVOLVING LOCOMOTIVE CRANE

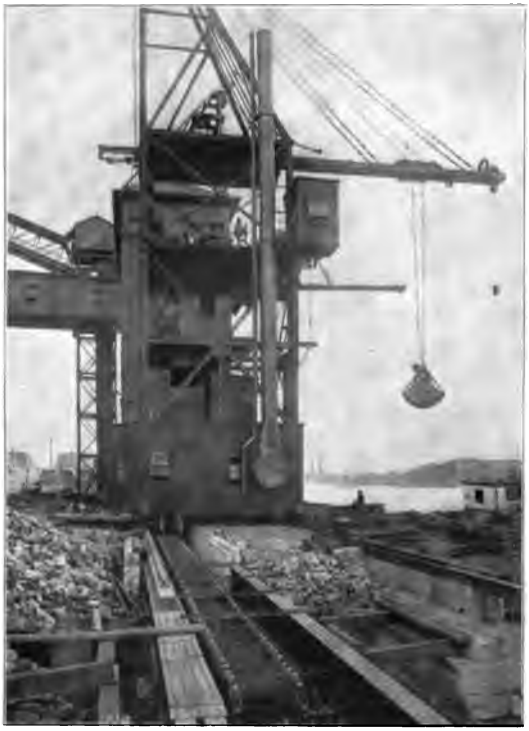
THIS IS THE CHEAPEST STORAGE SYSTEM, FOR LARGE BODIES OF BITUMINOUS COAL, ON THE MARKET, AND COMBINES A LOW COST OF HANDLING WITH LOW INVESTMENT COST.

Cranes, Hoisting Towers, Etc.

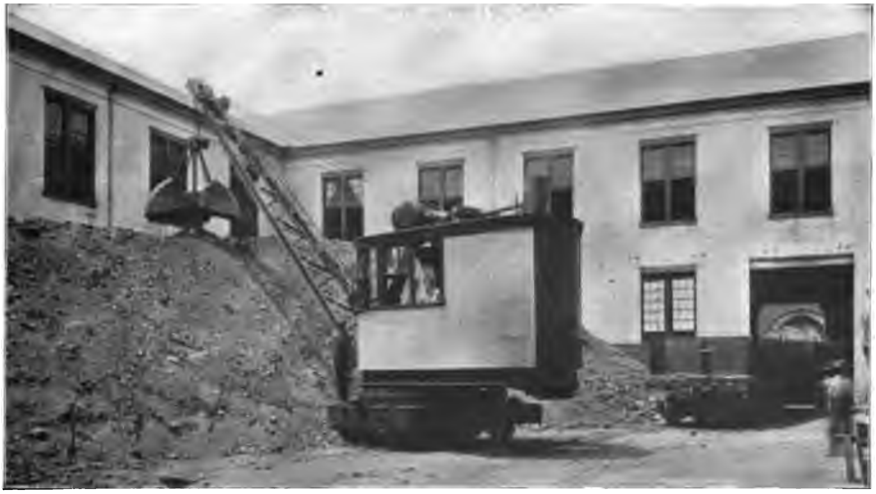
Equipped with

Clam-Shell Buckets

For handling stone and ores. Designed and built to operate independently or in connection with systems of elevators or conveyors, by which the material is subsequently distributed, stored, or handled to any extent required. Operated by steam or electricity.



PHOTOGRAPH SHOWS A HIGH-SPEED STEAM-OPERATED HOISTING TOWER, WITH 1½-TON CLAM-SHELL BUCKET, INSTALLED FOR THE MANHATTAN ELEVATED RY. CO., 74TH STREET, NEW YORK CITY. BUCKET DELIVERS COAL FROM CANAL BOAT INTO 5-TON HOPPER, FROM WHICH IT IS CRUSHED, WEIGHED, AND DELIVERED TO CONVEYOR FOR DISTRIBUTION IN BOILER HOUSE.

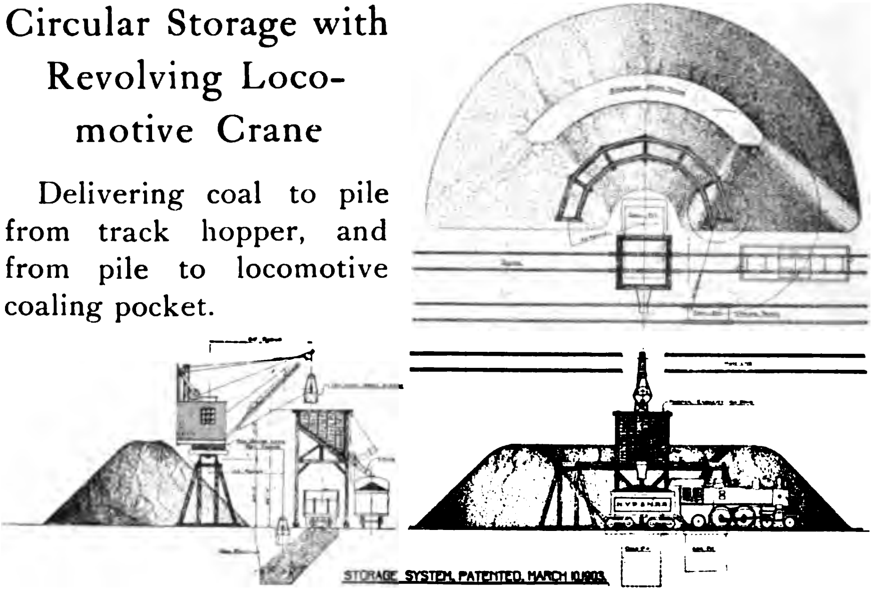


STANDARD GAUGE STEAM-OPERATED LOCOMOTIVE CRANE, WITH CLAM-SHELL BUCKET

THIS CRANE IS ARRANGED TO TRANSFER COAL FROM CARS TO CONVEYORS SERVING BOILERS OR TO STORAGE PILE. INSTALLED FOR THE UNITED STATES GOVERNMENT, NAVY YARD, WASHINGTON, D. C.

Circular Storage with Revolving Locomotive Crane

Delivering coal to pile from track hopper, and from pile to locomotive coaling pocket.

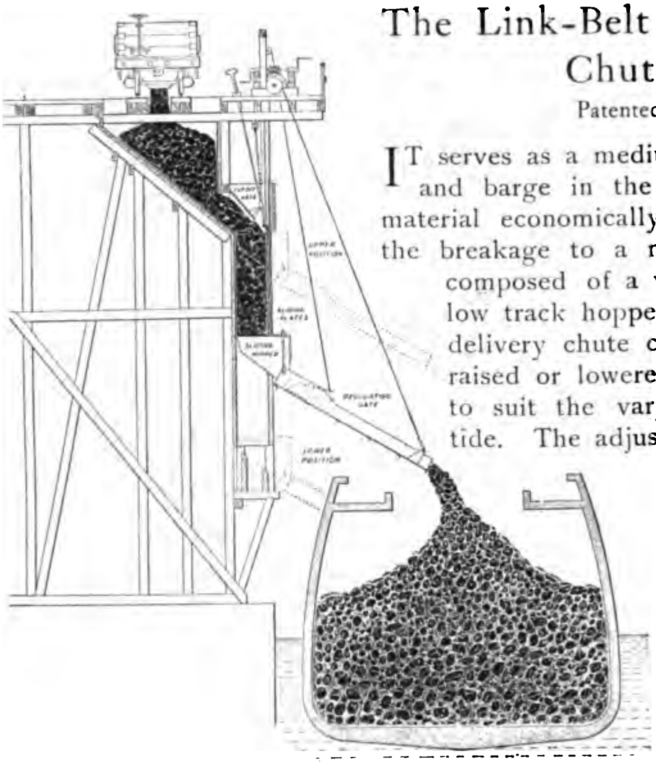


This system combines large surface storage, with the advantages afforded by elevated pockets, for coaling locomotives. It possesses the merit of low first cost.

ANTHRACITE COAL STORAGE PLANT
CAPACITY 75,000 TONS.
ERECTED AT HAMMOND, IND., IN 1900, FOR ERIE RAILROAD.

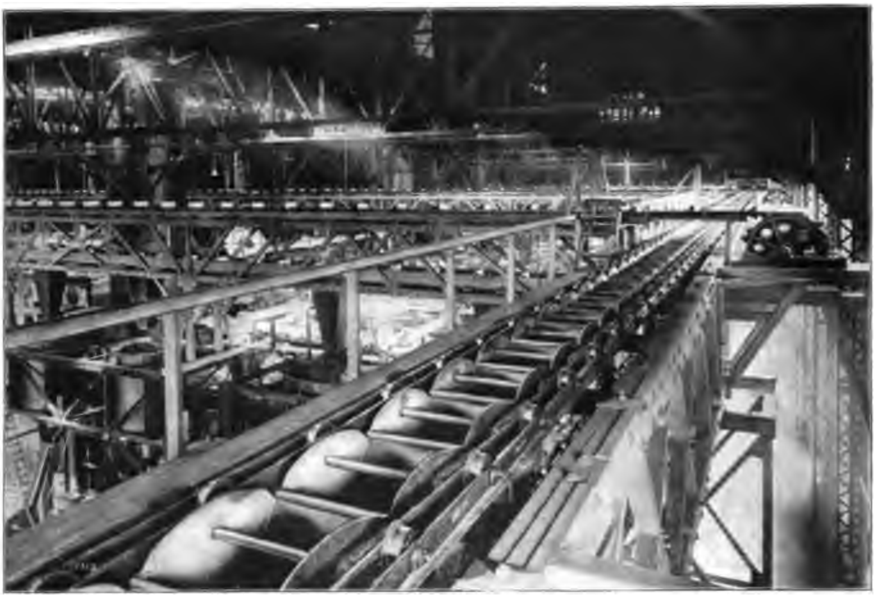
The Link-Belt Adjustable Chute

Patented



IT serves as a medium between car and barge in the transferring of material economically, and reducing the breakage to a minimum. It is composed of a vertical box below track hopper on pier, and a delivery chute capable of being raised or lowered at both ends, to suit the varying heights of tide. The adjustment of chute, corresponding with the variations in heights of barge at the different stages of tide, minimizes the drop of material.

GREENWICH POINT, PIER NO. 6.



OVERHEAD VIEW IN BOILER HOUSE, LOUISIANA PURCHASE EXPOSITION, ST. LOUIS.

Handling Coal and Ashes in Boiler Rooms

THE employment of mechanical appliances for handling coal and ashes is now considered an essential feature of every well designed boiler house. In the plant so equipped, not only is the boiler room as clean as the engine room, but space is economized, time saved, and the employment of labor reduced to an extent which soon repays the cost of installation.

Book No. 46 illustrates and describes the application of our methods. to work of this character.

We designed and installed the complete equipment for receiving, crushing, storing, and distributing coal to automatic stokers in the 40,000 H. P. boiler plant of the Louisiana Purchase Exposition. The above is from a photograph, showing the Link-Belt pivoted bucket carrier, delivering coal to distributing conveyors in the boiler house. Full description of this installation is contained in Supplement No. 1, Catalog No. 46.

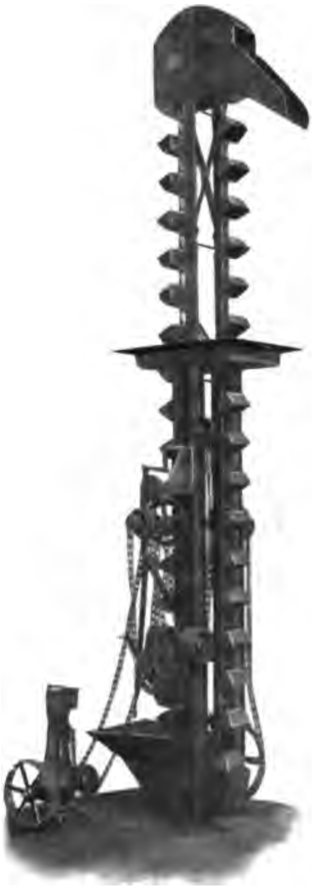
The "Link-Belt" Telescoping Ashes Elevator

FOR use in large buildings where boiler-room is located below street level. The elevator is placed beneath sidewalk and when ashes are to be elevated it is extended upward through a man-hole to proper height to discharge into a wagon. After use it is telescoped and the man-hole covered, as shown. The entire operation is performed by the driving power.

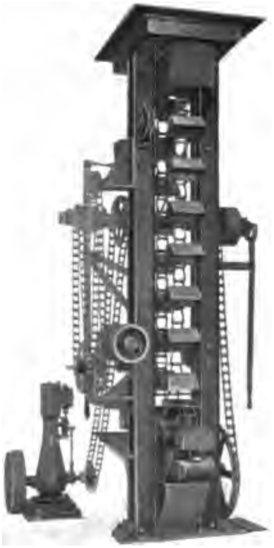
Made as shown, or with dust-tight steel casing, from standard drawings or to suit special conditions.

Employed in many large public and private buildings throughout the country, among which are the following:

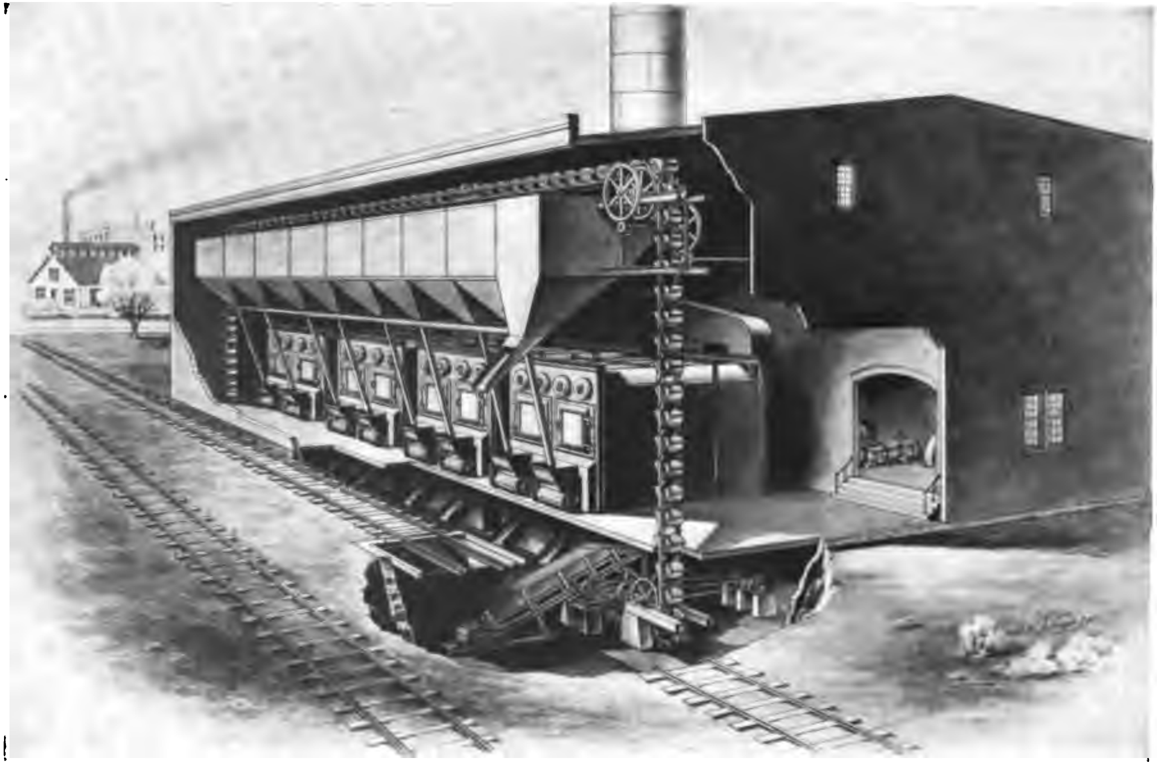
Wisconsin State Capitol, Madison, Wis.
Appraisers' Warehouse, New York City.
New Public Buildings, Philadelphia, Pa.
John Wanamaker, Philadelphia, Pa.
Marshall Field & Co., Chicago.
Schlesinger & Mayer, Chicago.
Siegel, Cooper & Co., Chicago.
Chamber of Commerce, Chicago.
Leiter Building, Chicago.
Schiller Building, Chicago.
Unity Building, Chicago.
Chicago Daily Tribune, Chicago.
Chas. Pope, Chicago.
Galt House, Louisville, Ky.



EXTENDED.

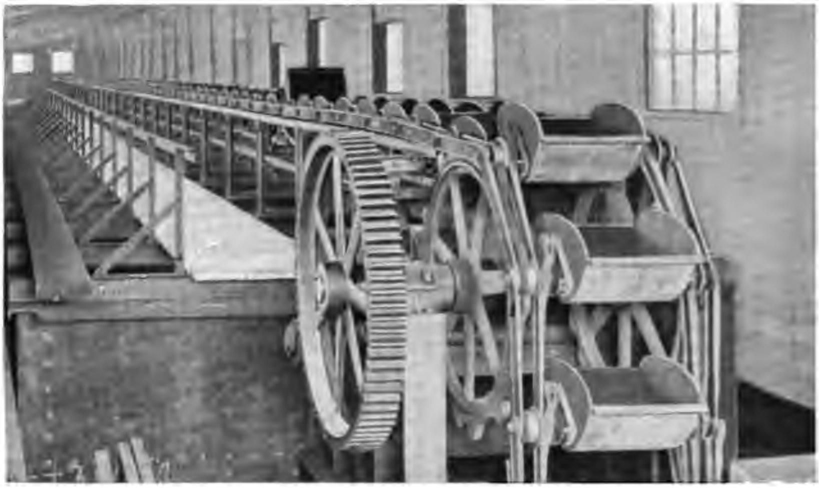


CLOSED.



LINK-BELT OVERLAPPING PIVOTED BUCKET CARRIER

COAL IS DELIVERED FROM TRACK HOPPER BY FEEDING APRON TO CRUSHER AND FROM THENCE DELIVERED BY CARRIER INTO BUNKERS. THE CARRIER ALSO DELIVERS THE ASHES FROM BOILERS INTO ASH POCKET, FROM WHICH IT IS SPOUTED INTO A CAR ON TRACK. CARRIERS OPERATING AS SHOWN, HAVE BEEN INSTALLED BY US IN POWER HOUSES OF THE CHICAGO & ALTON R'Y CO., BLOOMINGTON, ILL.; THE LAKE SHORE & MICHIGAN SOUTHERN R'Y CO.; COLLINGWOOD SHOPS, CLEVELAND, OHIO; ATCHISON, TOPEKA & SANTA FE R. R., TOPEKA, KAS.; AND OTHERS



SHOWING LINK-BELT OVERLAPPING PIVOTED BUCKET CARRIER DISTRIBUTING COAL INTO OVERHEAD POCKETS AT THE TWENTY-FIRST STREET POWER HOUSE OF THE CHICAGO CITY RAILWAY COMPANY, CHICAGO. ASHES ARE ALSO HANDLED BY THIS MACHINERY

The Link-Belt
Overlapping Pivoted Bucket Carrier

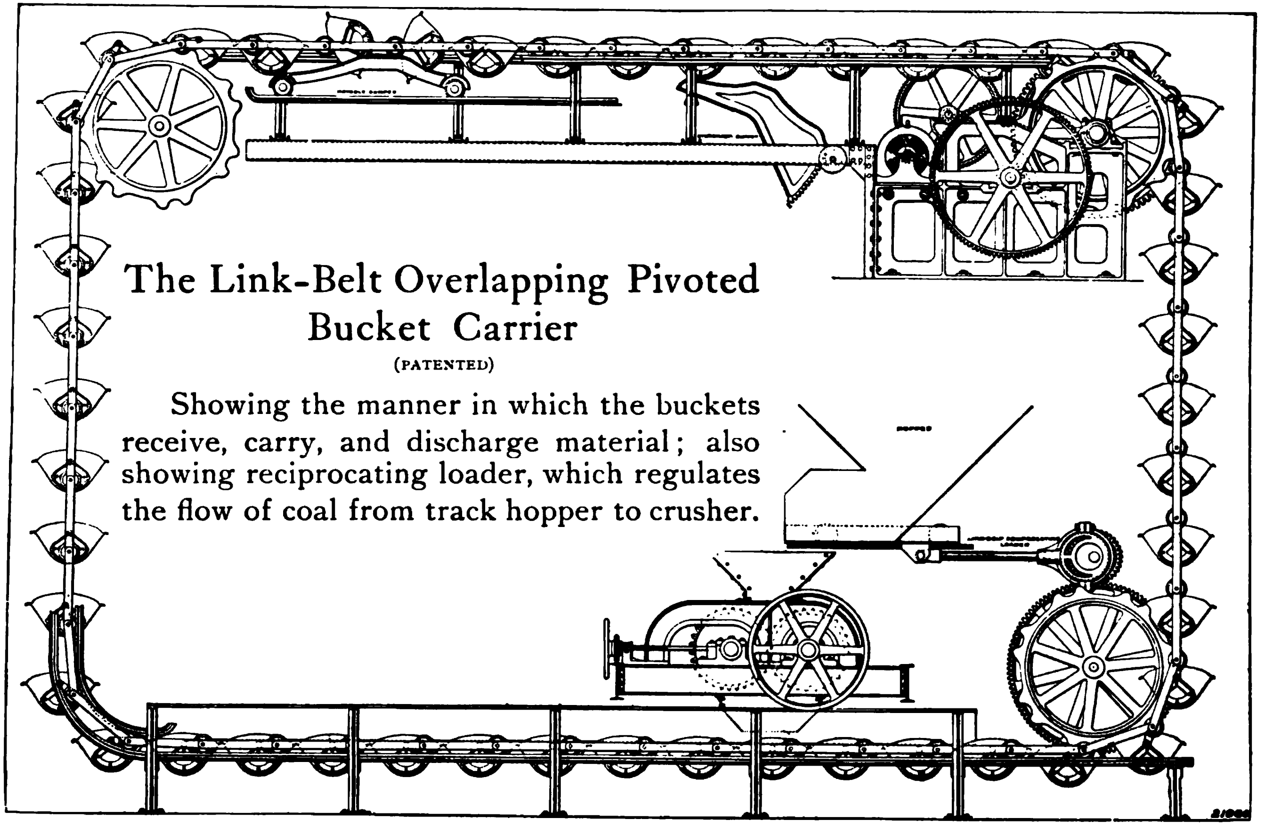
PATENTED

For Handling Small Coal, Ashes, Cement, Clinkers, Ores, Concentrates, Sand or other Materials Requiring Distribution

IT differs from other pivoted bucket carriers in that the buckets, being attached to extensions of the chain links projecting some distance back of the articulating points of the chain, move on a different radius from the chain proper in passing around the corner wheels. This causes the buckets to separate to an extent which permits them to reverse their positions in relation to each other without interference between the overlapping edges. The buckets naturally assume and maintain their proper positions at all times by gravity alone, and on the horizontal runs they overlap, forming practically a continuous trough, into which the material is easily fed without spilling.

The discharge is effected either by a dumping carriage, movable to any position, or by dumping blocks thrown into the path of the carrier at fixed points, no head room in excess of the depth of bucket being required.

The buckets are made of steel or malleable iron, the latter type being employed in most cases, owing to its greater stiffness and durability.



The Link-Belt Overlapping Pivoted Bucket Carrier

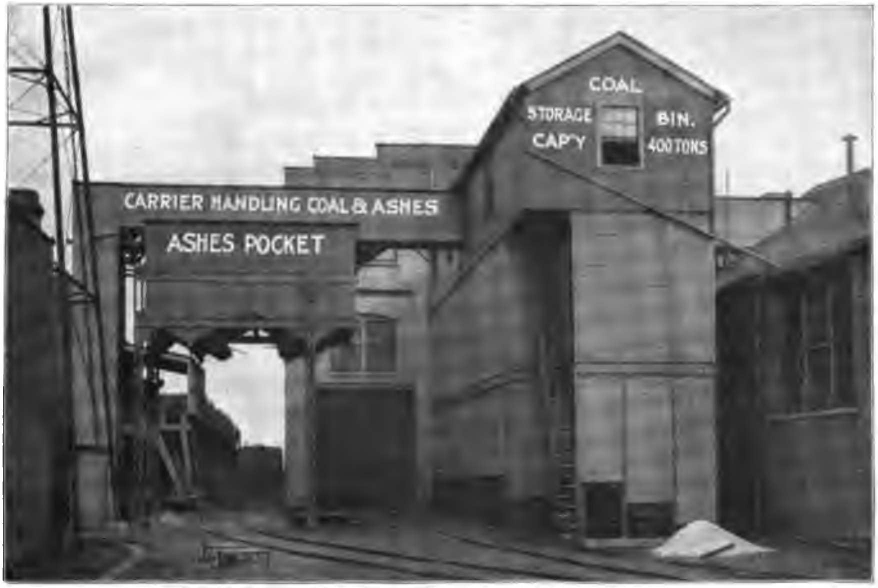
(PATENTED)

Showing the manner in which the buckets receive, carry, and discharge material; also showing reciprocating loader, which regulates the flow of coal from track hopper to crusher.

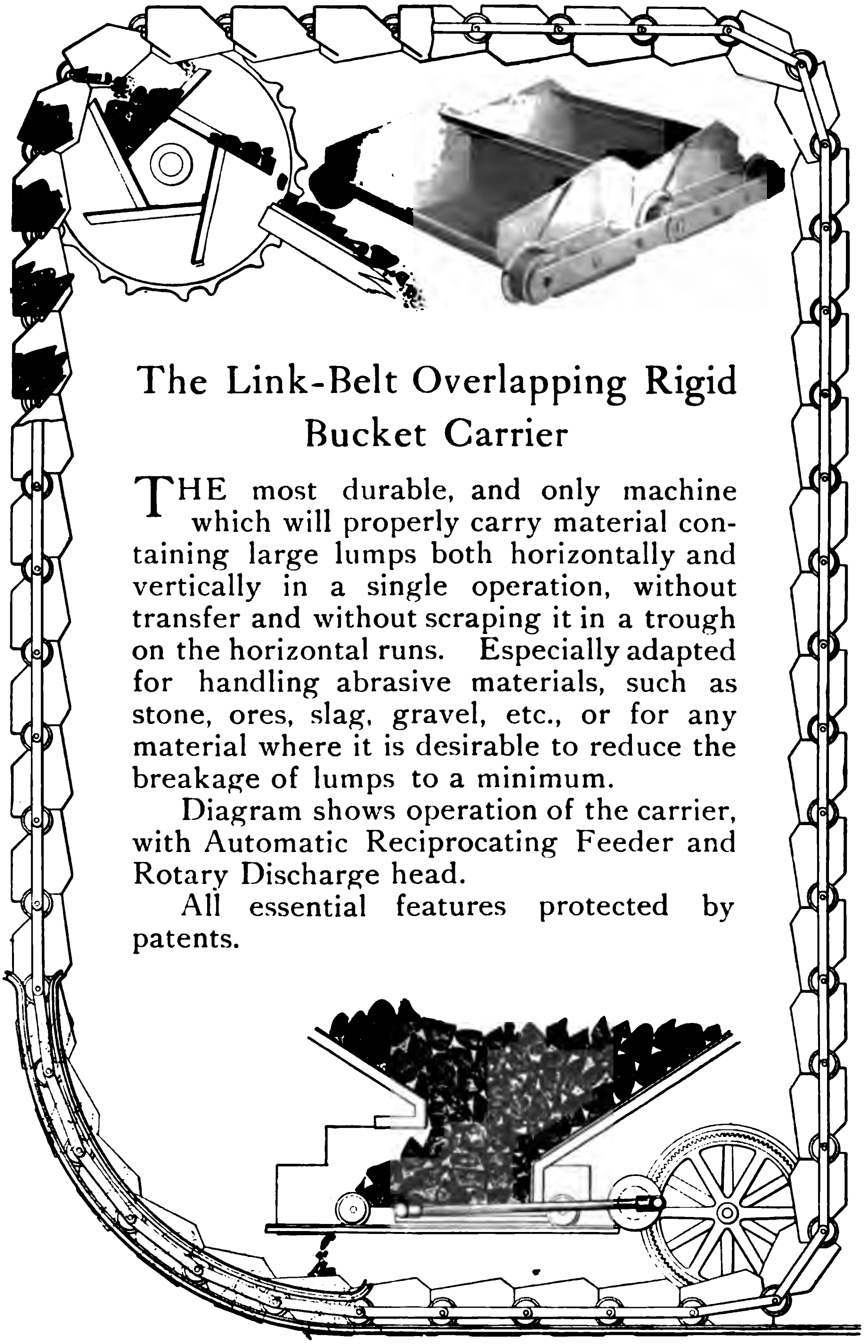
When local conditions permit, a single carrier will easily handle all the coal and ashes of a large boiler plant, performing the work rapidly, thoroughly, and without noise, dirt or other objectionable feature. When material is carried in two or more directions, the operation performed is simpler, is accompanied by less friction, and consequently by less wear of parts or consumption of power, than when any other type of machinery is employed.

The Link-Belt Pivoted Bucket Carrier is especially adapted for handling ashes or other hot or highly abrasive materials, which rapidly destroy elevating and conveying machinery of ordinary types. In this, as in less severe service, it has uniformly developed efficiency and durability of the highest order.

Further information concerning its construction and operation contained in book No. 46.



OVERLAPPING PIVOTED BUCKET CARRIER
HANDLING BOTH COAL AND ASHES, AT BOILER HOUSE OF THE LINK-BELT MACHINERY COMPANY, CHICAGO.



The Link-Belt Overlapping Rigid Bucket Carrier

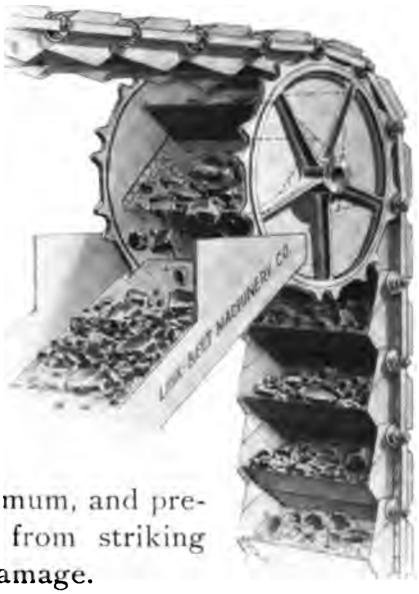
THE most durable, and only machine which will properly carry material containing large lumps both horizontally and vertically in a single operation, without transfer and without scraping it in a trough on the horizontal runs. Especially adapted for handling abrasive materials, such as stone, ores, slag, gravel, etc., or for any material where it is desirable to reduce the breakage of lumps to a minimum.

Diagram shows operation of the carrier, with Automatic Reciprocating Feeder and Rotary Discharge head.

All essential features protected by patents.

The Link-Belt Rotary Discharge Head

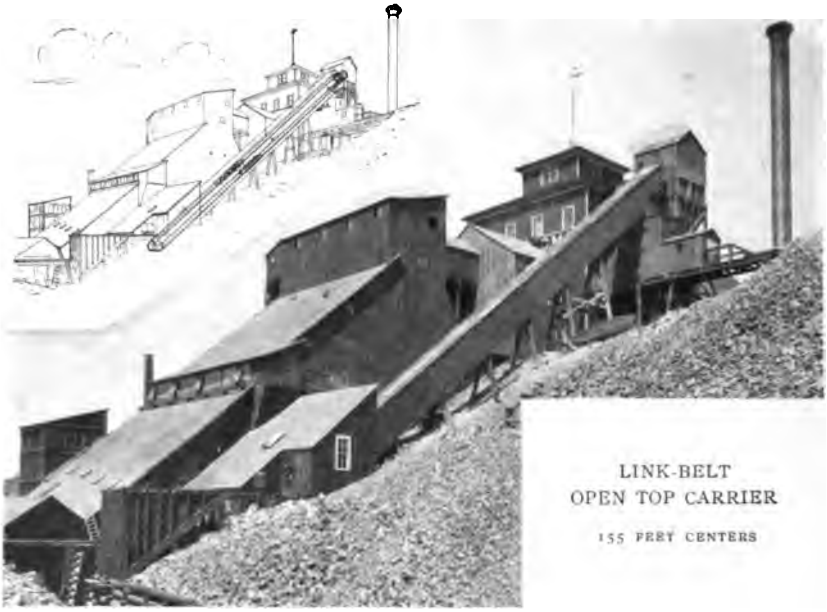
Patented


LINK-BELT MACHINERY CO.

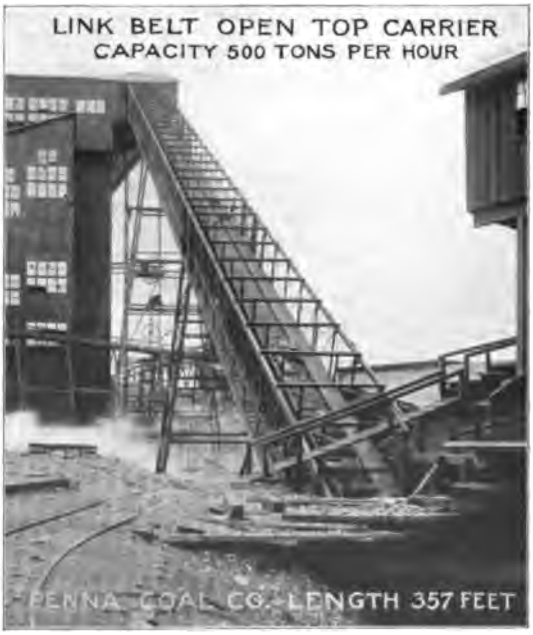
IS an essential feature of the Link-Belt Carrier, inasmuch as it prevents the coal from spilling as buckets begin to invert while passing around the head wheel. It also reduces the breakage of material to a minimum, and prevents large projecting lumps from striking the edge of chute and doing damage.

For handling materials which contain heat, acids, or other elements to an extent which adversely affect steel construction, we make a carrier similar to the one shown on opposite page, excepting that the buckets and chain are made of malleable iron instead of steel. These do not become warped or distorted, are but slightly affected by corrosion, and as all wearing parts are of hard steel, protected and renewable, it has given excellent service where no other form of construction has been found satisfactory.

MALLEABLE IRON RIGID BUCKET CARRIER.



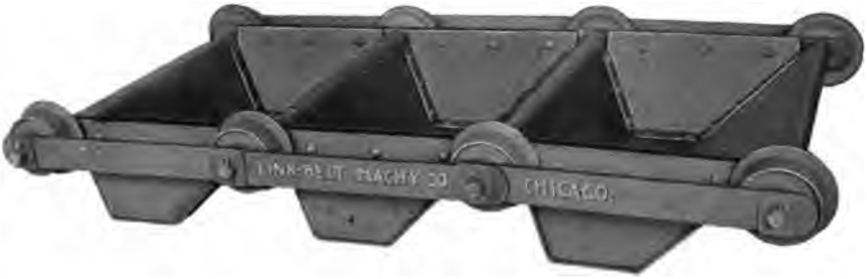
HANDLING TAILINGS FROM MILL TO DUMP AT PLANT OF THE PORTLAND GOLD MINING COMPANY, VICTOR, COLO.


LINK BELT OPEN TOP CARRIER
CAPACITY 500 TONS PER HOUR
PENNA. COAL CO. - LENGTH 357 FEET

OPEN TOP CARRIER, DELIVERING MINE RUN ANTHRACITE COAL FROM SHAFT TO BREAKER.

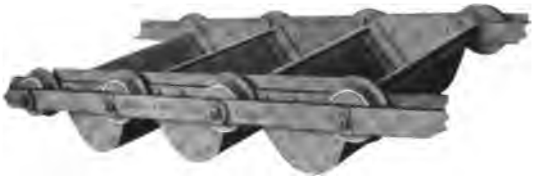
Link-Belt Open Top Carrier

For handling heavy materials horizontally, and on medium or steep grades.

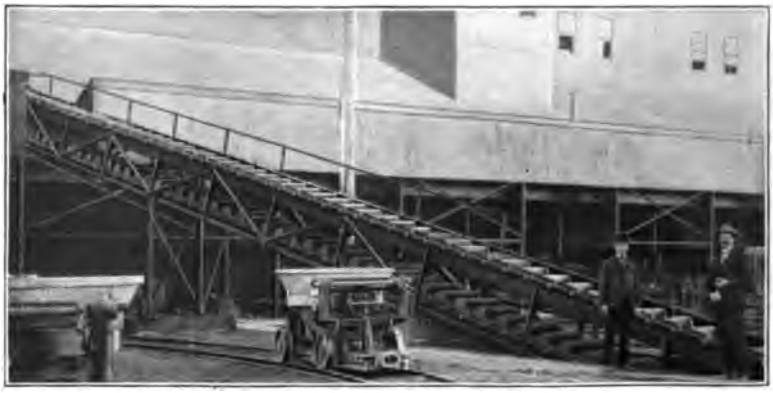


We have furnished carriers of this type having guaranteed capacities of 20 cubic yards per minute.

They are built for severe service and in any reasonable lengths required. The chain links are of steel connected by cold rolled shafts extending through from outside to outside of carrier. Wear in the articulations is confined to these shafts and to renewable steel bushings, none falling on the chain proper.

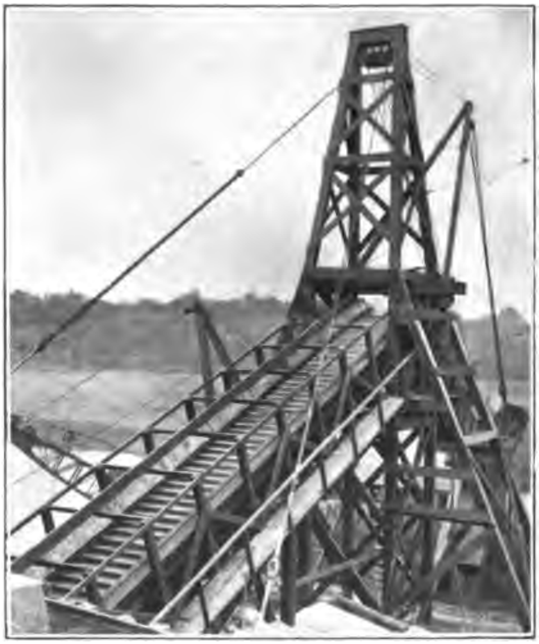


Buckets are made with flat or round bottoms as shown. The former type being more commonly employed. When heavy lumps are dropped onto the carrier from a considerable height flat bottom buckets, provided with a thick wood lining, to absorb the impact, are used.



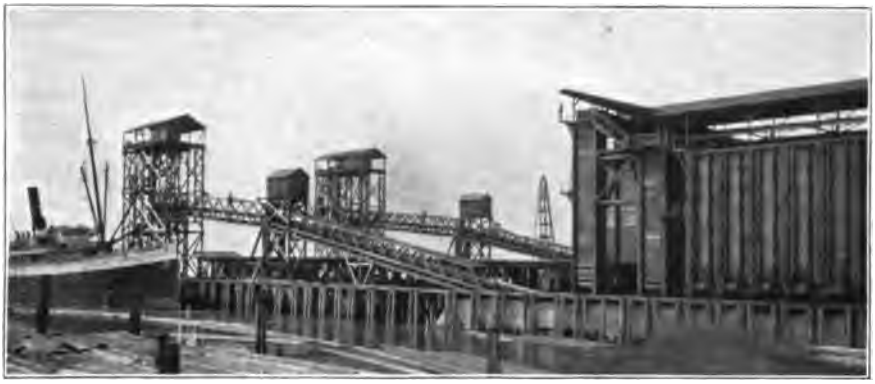
LINK-BELT "OPEN-TOP" CARRIER

222 FEET CENTRES, HANDLING BROKEN SLAG AT WORKS OF THE AMERICAN SMELTING & REFINING CO., MURRAY, UTAH, INSTALLED IN 1901



LINK-BELT "PACIFIC COAST" CARRIER

DELIVERING MINE RUN COAL FROM RAILWAY TRACK HOPPER TO HOLDS OF VESSELS AT SHIP-LOADING PLANT OF THE B. & O. RY. CO., LORAIN, O., INSTALLED IN 1904. LENGTH OF CARRIER 71 FEET, EMPLOYING 60 INCHES BY 12 INCHES PANS. PHOTOGRAPH TAKEN DURING CONSTRUCTION.



COAL STORAGE AND SHIP-LOADING PLANT, EQUIPPED IN 1904 FOR THE PACIFC COAST CO., SEATTLE, WASH. VIEW SHOWS TWO PACIFIC COAST CARRIERS, 275 FEET AND 315 FEET LONG RESPECTIVELY, DELIVERING COAL TO VESSELS. EACH HAS AN ADJUSTMENT OF 20 FEET AT OUTER END TO SUIT HEIGHT OF TIDE AND FREE-BOARD OF VESSELS. COMBINED CAPACITY, 15,000 TONS IN TEN HOURS. PLANT FULLY DESCRIBED IN SPECIAL CATALOG NO. 60.

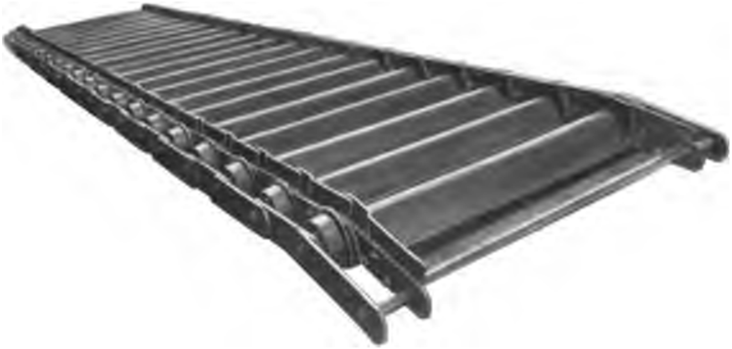
The Link-Belt "Pacific Coast" Carrier

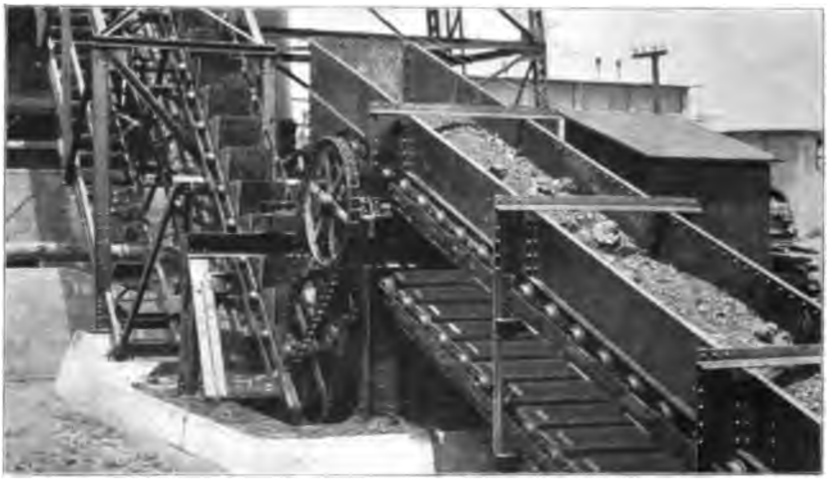
IS built in the standard sizes, 12-inch pitch, 7 inches deep, with a carrying surface from 4 to 6 feet wide, capable of supporting heavy loads centrally concentrated.

The pans consist of steel plates, accurately formed and riveted to heavy malleable iron ends, which are secured to the inside straps of the chain links as shown.

The stiffness afforded by this construction and by the relatively short pitch of the pans is such that through shafts as employed with the open top carrier are not required. The chain links are connected by renewable steel pins and bushings, to which all articular wear is confined, and are fitted with absorbent or inclosed self-oiling rollers, as hereinafter described.

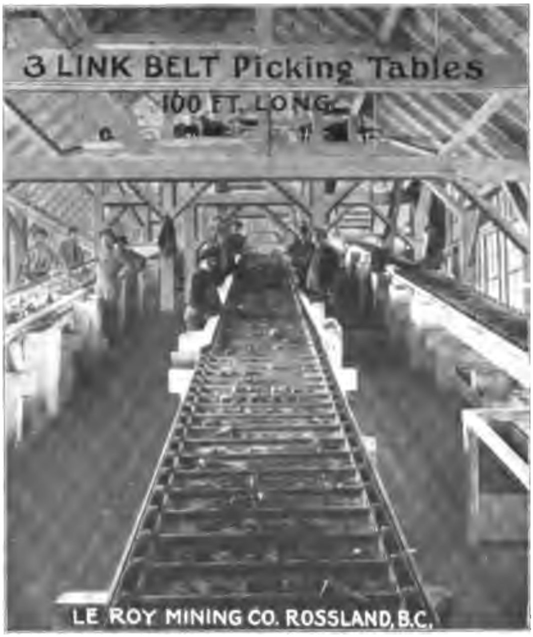
Carriers of this type are especially adapted for ship-loading plants, or other work where delay is attended by much expense or inconvenience.





LINK-BELT "CORRUGATED APRON" CARRIER

DELIVERING COAL FROM CARS TO CRUSHER AT THE BI-PRODUCT COKE PLANT OF THE SEMET-SOLVAY COMPANY, GENEVA, N. Y. AFTER BEING CRUSHED, THE COAL PASSES TO AN INCLINED BUCKET ELEVATOR, AS SHOWN, FOR DELIVERING TO STORAGE. INSTALLED IN 1903.



LINK-BELT "CORRUGATED APRON" CARRIER

IS EXTENSIVELY EMPLOYED FOR COAL AND ORE PICKING TABLES, AS SHOWN.

The Link-Belt Corrugated Apron Carrier

IS similar in construction to the Pacific Coast Carrier already described, except in width, pitch, and depth of pans. In widths as great as four feet, it forms the most efficient and serviceable type of picking table for coal and ores. It is also an excellent carrier for handling heavy materials, except on very steep grades, and is largely employed as a feeder to regulate the flow of coal from track hoppers, as shown on opposite page.

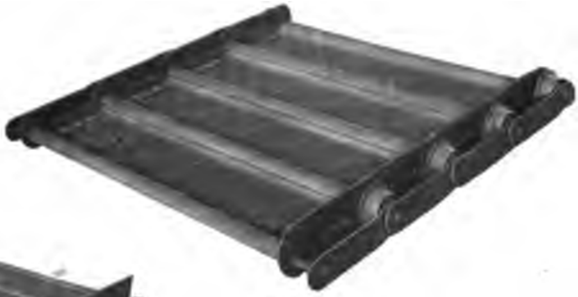


FIG. 1

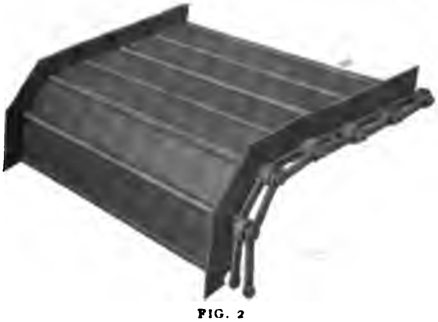
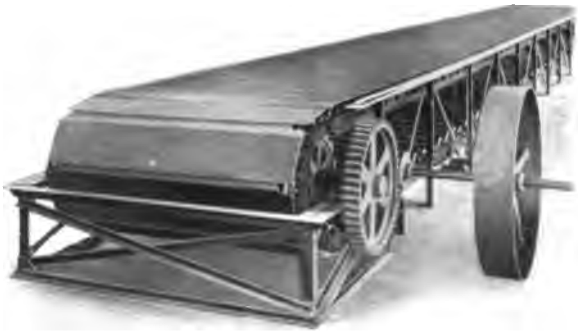


FIG. 2

Fig. 1 shows a section of standard corrugated apron, 9-inch pitch, with steel chains and flanged rollers, while Fig. 2 shows a carrier of same type, 4-inch pitch, having pans secured to malleable iron rolling chains. The latter is employed only in the handling of very light materials.

Flat Top Apron Carriers

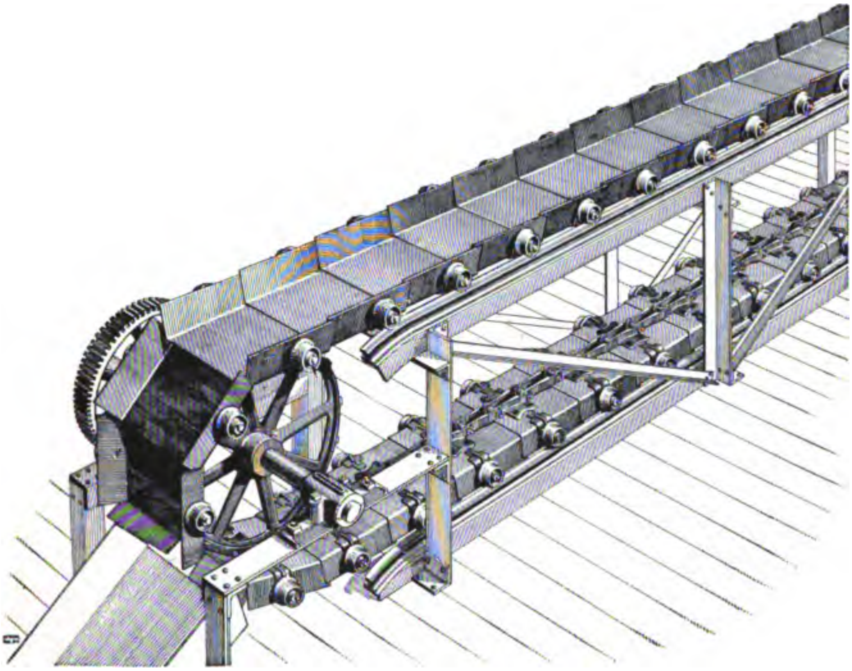


ARE employed when a practically smooth carrying surface is essential. These differ substantially from the three types of carriers last referred to, in that the plates overlap at a point several inches above the pitch line of the chain.

SHOWING ONE OF TWO FLAT-TOP APRON CARRIERS, 51-FT CENTERS, EMPLOYED AS COAL-PICKING TABLE BY ROBERT HEATH & SONS, STOKE-ON-TRENT, ENGLAND, INSTALLED BY THE CHAIN BELT ENGINEERING COMPANY, DERBY, ENGLAND.

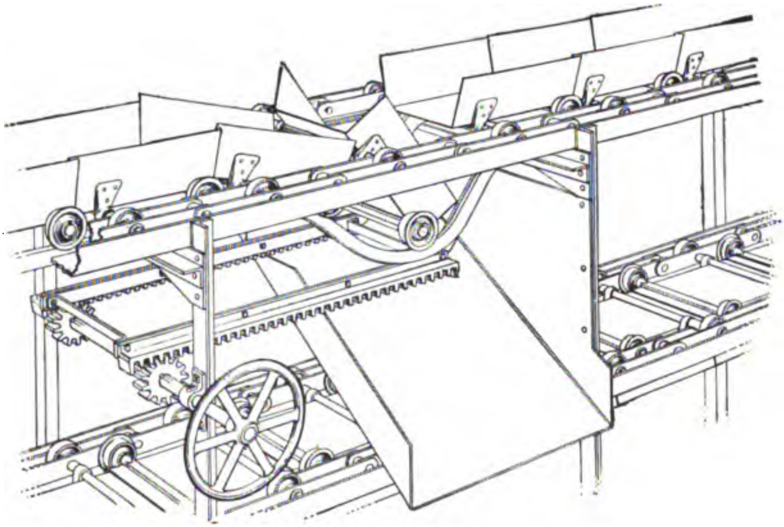
SHOWING APRON CARRIER, 52 FT CENTERS, DELIVERING PITCH INTO RAILWAY CARS, INSTALLED FOR ROBINSON BROS., SPONDON, ENGLAND, BY THE CHAIN BELT ENGINEERING COMPANY, DERBY, ENGLAND.

Steel Pan Endless Trough Carriers



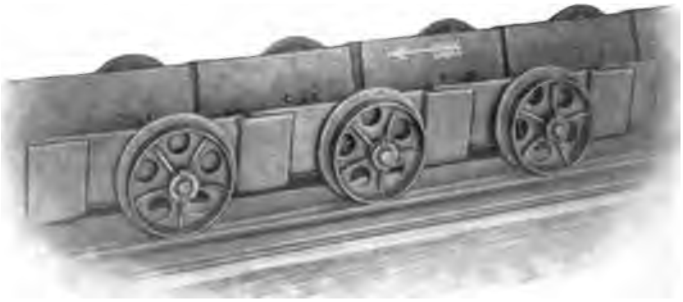
ENDLESS TROUGH CARRIER

FOR DRY CLAY, CRUSHED STONE, ROCK SALT, AND OTHER MATERIAL OF A SIMILAR NATURE.



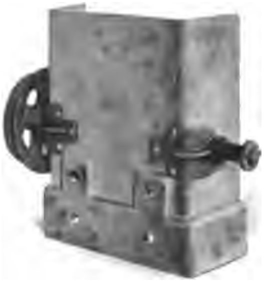
ENDLESS TROUGH CARRIER WITH INTERMEDIATE DISCHARGE GATES
(PATENTED)

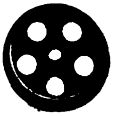
Cast Iron Endless Trough Carrier

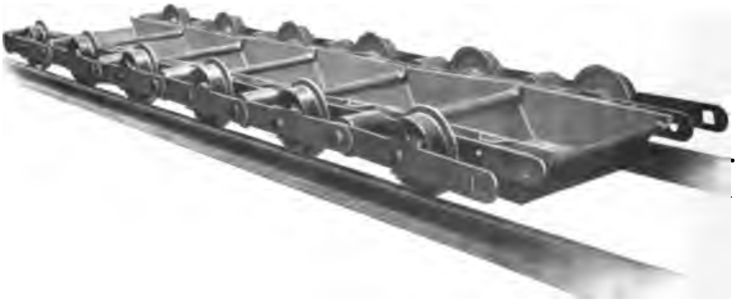


For handling hot cement, clinkers, or work under high temperatures which would warp or distort pans of ordinary steel construction.

Showing form of Cast Iron Overlapping Pan and manner in which the wheels are attached thereto.





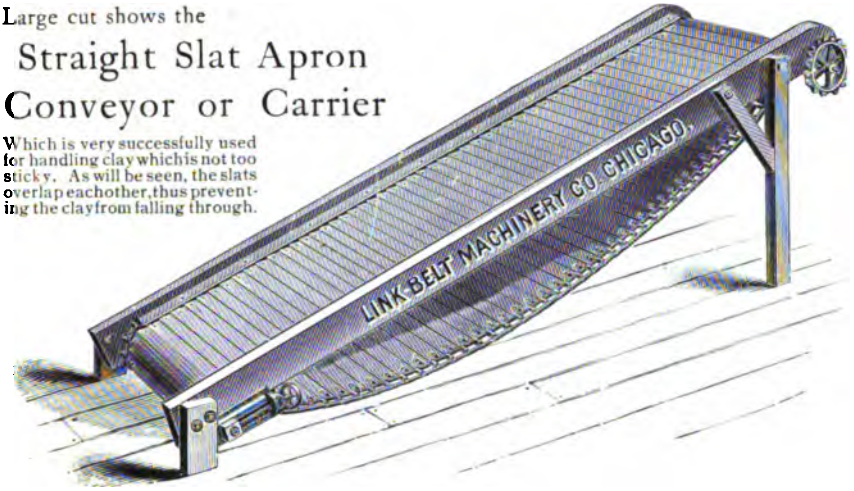


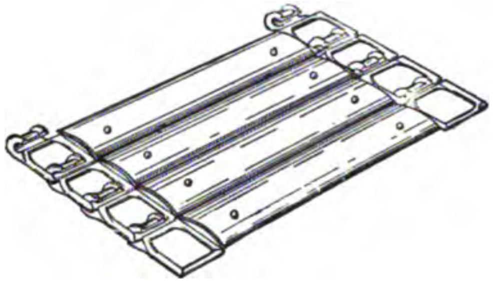
Malleable Iron Open Top Carrier for handling hot cement, clinkers, ashes, roasted ores, iron scale, or other material under high temperatures.

Large cut shows the

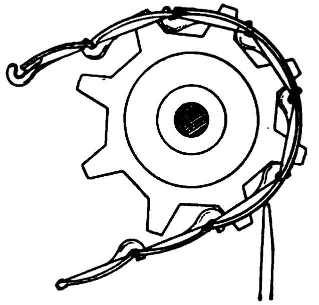
Straight Slat Apron Conveyor or Carrier

Which is very successfully used for handling clay which is not too sticky. As will be seen, the slats overlap each other, thus preventing the clay from falling through.


LINK-BELT MACHINERY CO. CHICAGO.



CURVED SLAT.



SHOWING MANNER IN WHICH SCRAPER IS APPLIED.

The Curved Slat Conveyor or Carrier

Patented

Is particularly adapted for handling tempered or sticky clay. The slats are made of steel, curved in such a manner as to form a practically cylindrical surface at the discharge end, to which a scraper is applied, and overlapped at the pitch line of the chain in such a manner as to prevent the slats opening up in relation to each other, or sliding on each other, thus effectually preventing the clay working in between the slats, and practically avoiding the difficulties which are experienced in the use of the various imitations of our device. The cylindrical surface with scraper, and the meeting of the slats on the pitch line, are both covered by the claims of our patent, and these features give a decided **Mechanical Superiority** to our device over the various imitations which have been attempted.

These Conveyors are built of any desired length and width, and are used for a variety of purposes. The sizes most commonly required for handling clay are as follows:

Iron Work of Curved Slat Clay Conveyors with Idlers, not Including Driving Machinery or Chain Guards

WIDTH OF APRON.	LENGTH OF CONVEYOR.					
	10 ft.	12 ft.	14 ft.	16 ft.	18 ft.	20 ft.
12 inches	$75 00	$85 40	$95 80	$106 20	$120 60	$131 00
14 inches	78 00	88 80	99 60	110 40	125 20	136 00
16 inches	81 00	92 20	103 40	114 60	129 80	141 00
18 inches	84 00	95 60	107 20	118 80	134 40	146 00
20 inches	87 00	99 00	111 00	123 00	139 00	151 00

"Link-Belt" Endless Transfer

Patented

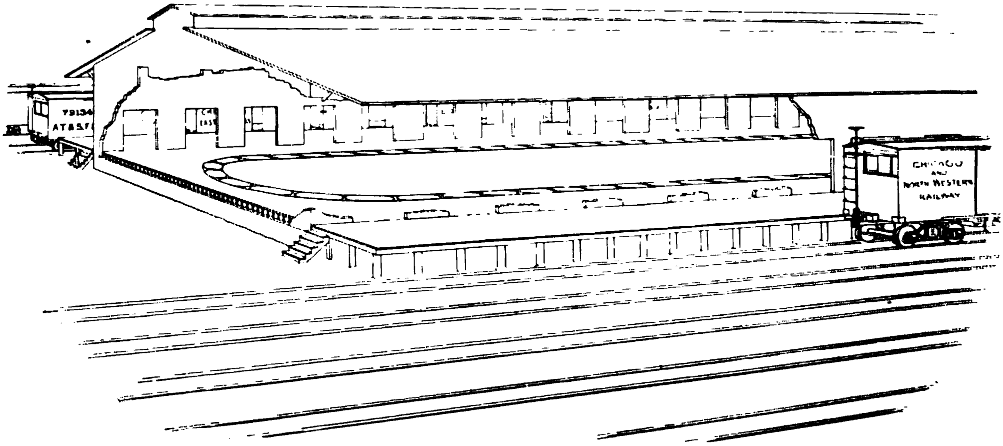
CONSISTS of an endless series of platforms, made in sizes as large as 8 ft. long by 4 ft. wide, mounted on steel trucks, with car axle bearings, and 16-in. diameter wheels traveling on T rails. The platforms are of oak, bound on edges with angle iron, and can be readily lifted off the trucks.

It takes the place of truckers in moving and distributing freight in large warehouses or freight depots, and is especially adapted for terminal points where freight is transferred between different roads for reshipment.

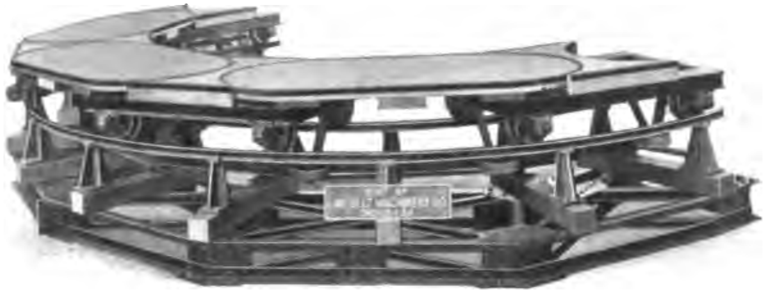
In the latter case freight is deposited directly onto the carrier, or it can be loaded on warehouse trucks and run onto the platforms direct from cars or after sorting. Each article or truck load is given a mark indicating its destination, and is taken off by the men loading cars at that point.

To secure the best results the building should be sufficiently long to accommodate all the cars on two or three tracks, as indicated by outline below, thus reducing the unavoidable trucking to and from platform and throwing the bulk of work upon the machine.

As the entire moving surface is flush with the warehouse floor and presents no opening or obstruction to the floor surface, freight can be trucked on and off or across the transfer at any point.



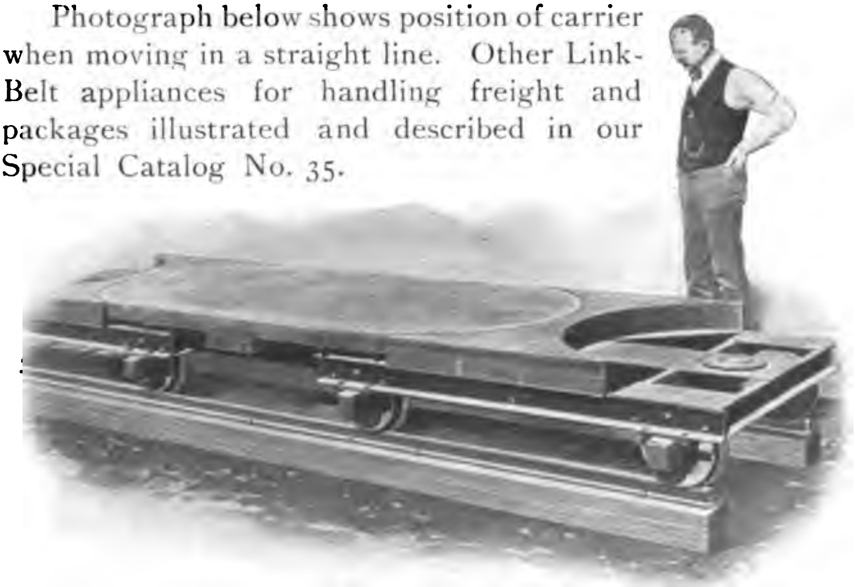
"Link-Belt" Endless Transfer—Continued

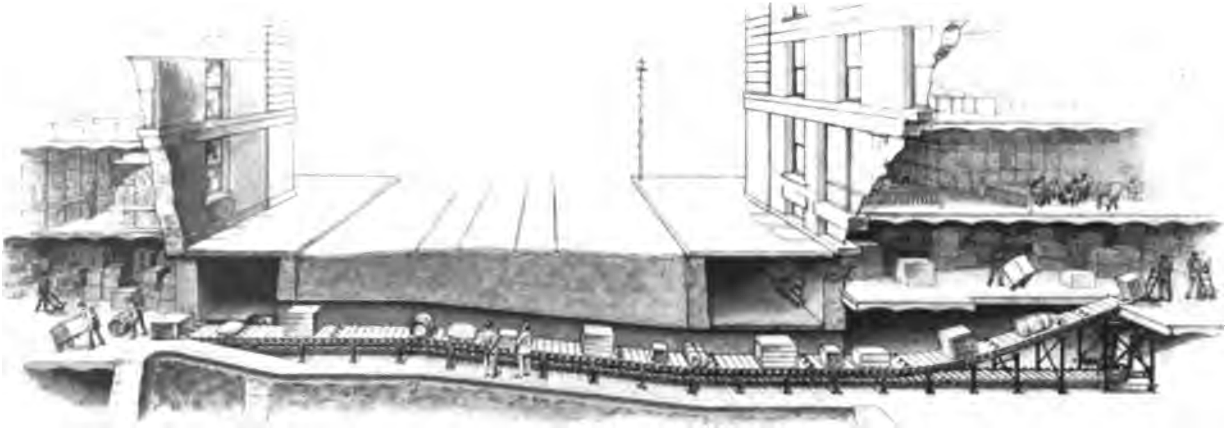


The construction of the machine is of the most durable nature. It is driven by steam or electricity and all working parts are beneath the floor, so that excepting the narrow space occupied by the transfer, the entire warehouse floor is available for storage purposes.

The above photograph shows complete end mechanism and track supports for Link-Belt Transfer. It will be observed that no opening occurs between the platforms when making the turn, and as both the inner and outer edges assume the form of a curve rather than a polygon, no objectionable opening occurs between same and the floor surface.

Photograph below shows position of carrier when moving in a straight line. Other Link-Belt appliances for handling freight and packages illustrated and described in our Special Catalog No. 35.





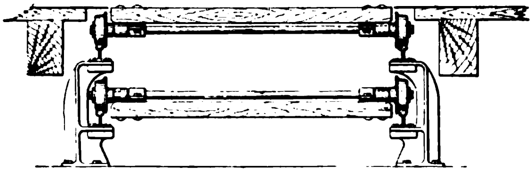
CONTINUOUS LINK-BELT CARRIER

INSTALLED IN 1902 FOR BUTLER BROS., CHICAGO. FREIGHT OF EVERY KIND IS RECEIVED IN BASEMENT OF NEW BUILDING ON NORTH SIDE OF RANDOLPH ST., IS CARRIED DOWNWARD TO THE SUB-BASEMENT LEVEL AND THROUGH A TUNNEL UNDER STREET TO SHIPPING FLOOR IN BASEMENT OF BUILDING ON OPPOSITE SIDE. LENGTH OF CARRIER, 132 FEET.

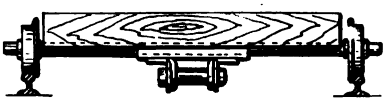
Continuous "Link-Belt" Carriers

For Handling Miscellaneous Freight and Packages

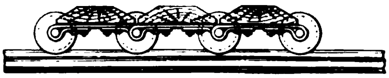
ARE built in a variety of forms to suit the character of material, and conditions involved in its transportation. Cuts below show standard forms of construction employed for double and single strand carriers of this type.



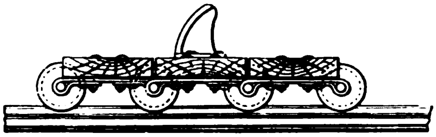
A



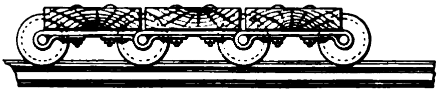
B



C



E



D

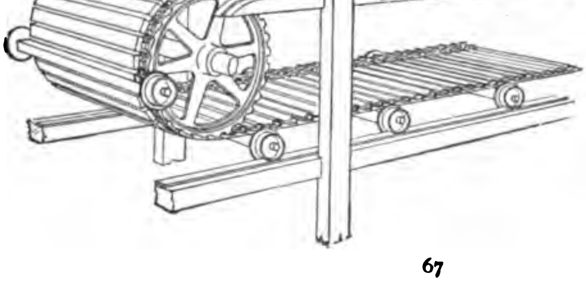
A.—Cross section of Double Strand Freight Carrier, as shown on opposite page, with standard cast iron track supports. Made in any proportions.

B.—Cross section of Single Strand Freight Carrier. This form should not exceed 18 or 20 inches in width.

C.—Section of Beveled Edge Flights, used with Carriers A or B. Suitable for handling loaded trucks or barrels on steep grades. The truck wheels or barrels rest in the recesses formed by the beveled edges and are securely held inposition.

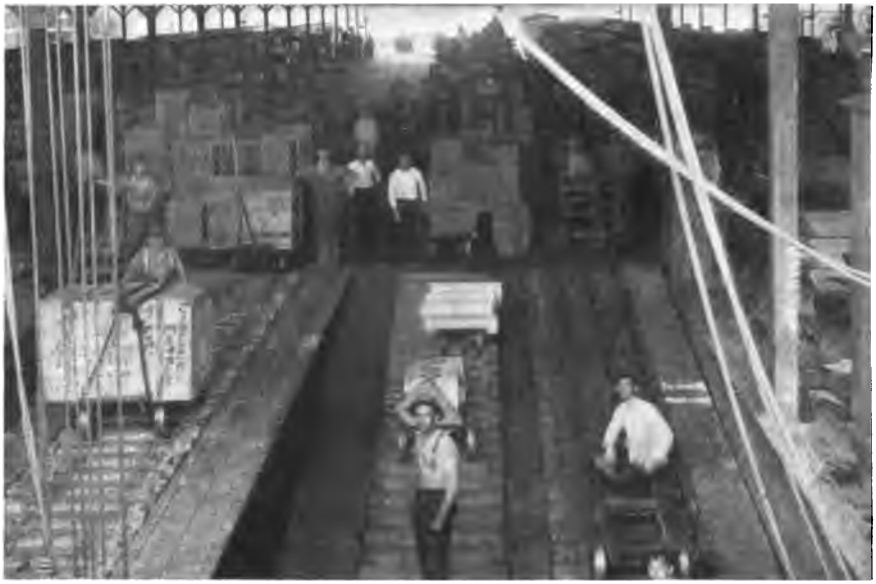
D.—Section of Straight Flights, used with A or B. Suitable for horizontal hauls and slight grades.

E.—Similar to D, excepting that cast iron pushers are employed. Suitable for handling packages or miscellaneous freight, horizontally or on steep grades, as indicated on opposite page.



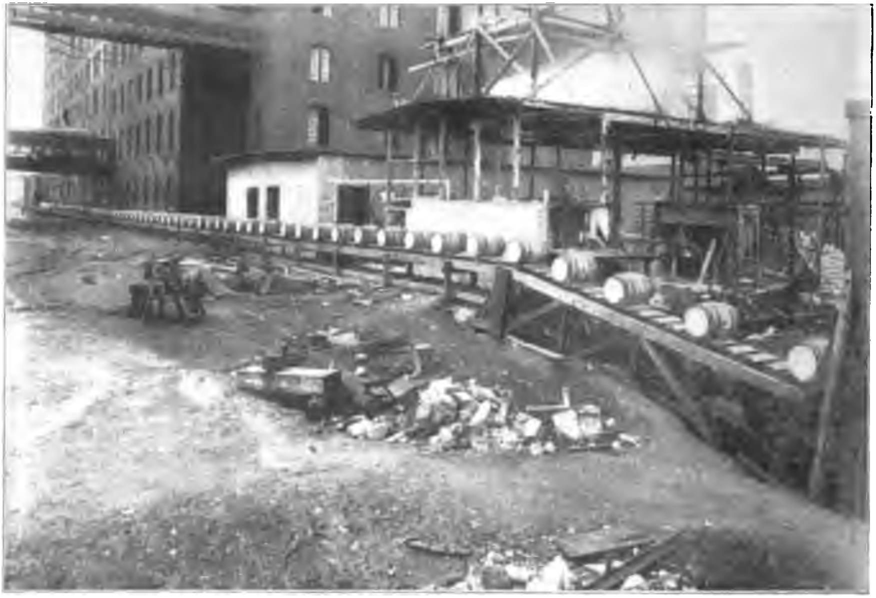
Roller Slat Carriers

Designed for light cases or packages in canneries, soap factories, packing houses, warehouses, etc.



ADJUSTABLE FREIGHT CARRIERS

PARTIAL VIEW OF 28 ADJUSTABLE FREIGHT CARRIERS, OF THE TYPE DESCRIBED ON OPPOSITE PAGE, AT DOCKS OF SOUTHERN PACIFIC CO., GALVESTON, TEXAS. VIEW SHOWS CARRIERS RECEIVING CARGO FROM DECK AND PORTS OF VESSEL.

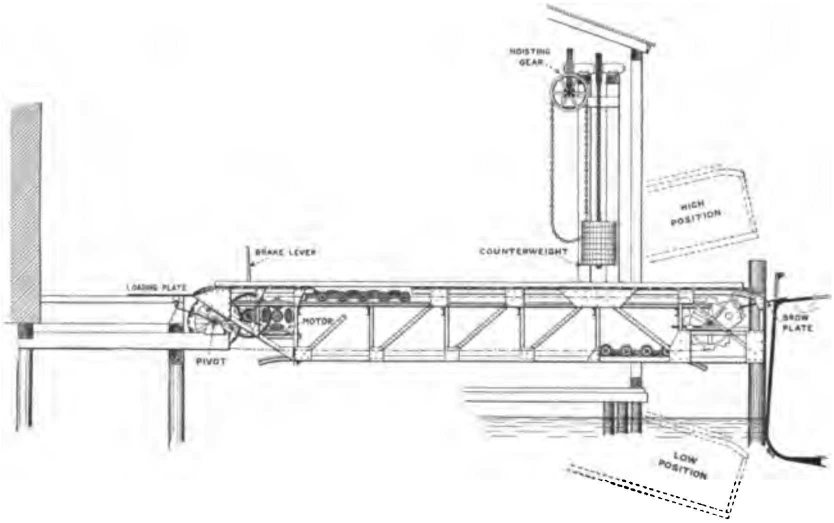


ENDLESS FREIGHT CARRIER

DESIGNED AND ERECTED FOR THE GLUCOSE SUGAR REFINING COMPANY, TAYLOR STREET BRIDGE, CHICAGO. LENGTH, 435 FEET. ADJUSTABLE END HAS RISE AND FALL OF 16 FEET. VIEW SHOWS CARRIER RUNNING WITH 75 BARRELS, WEIGHING 700 LBS. EACH.

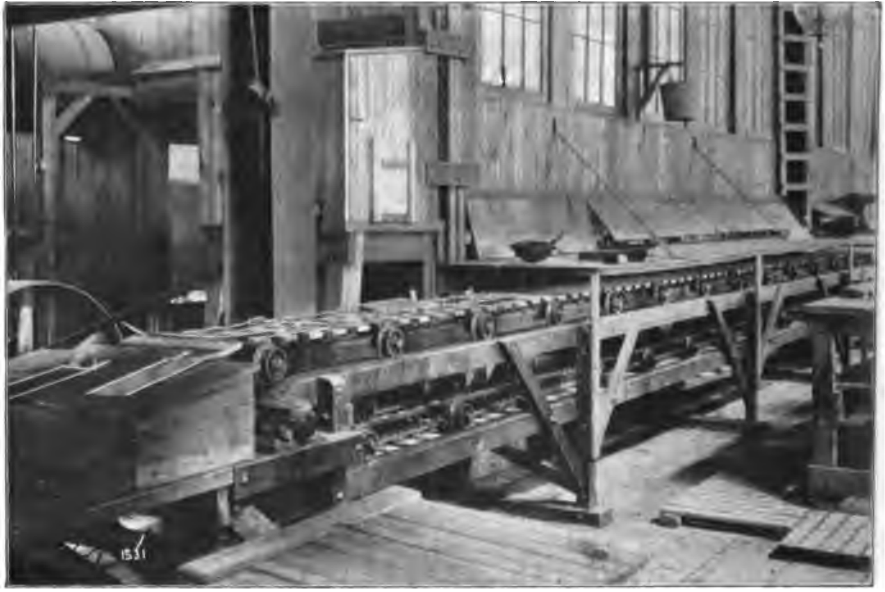
"Link-Belt" Adjustable Carrier

For Loading and Unloading Vessels

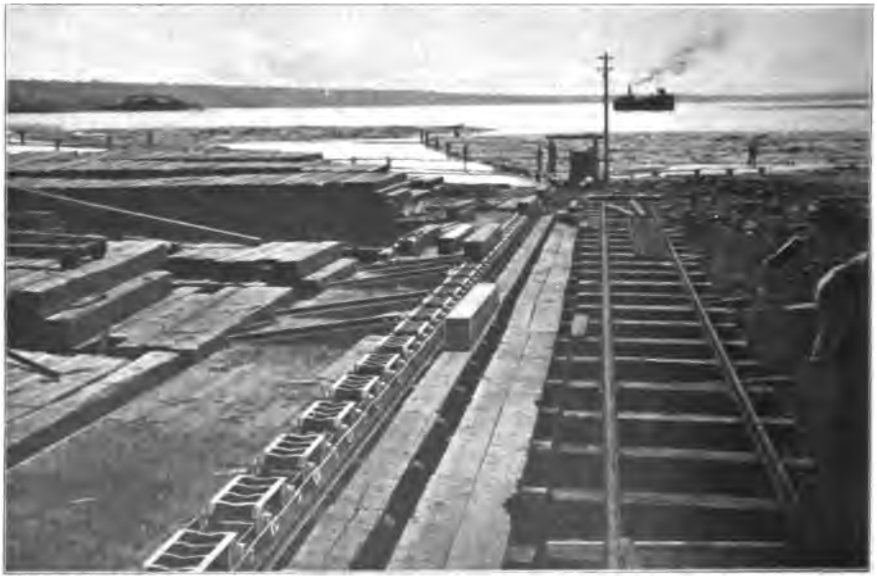


THE Carrier consists of an endless traveling platform, upon which the men walk with their loaded trucks and are carried up the incline into the warehouse. The return trip with empty trucks is made over the stationary part of the gangway. The entire structure is pivoted at the inboard end, and is raised or lowered to suit the varying heights of vessels and tides. As the traveling platform is designed to hold the trucks securely in place during the ascent, no additional labor is required to unload a vessel whose ports are considerably below the deck of the pier; and as the carrier is reversible, it can also be used for loading the vessel when the ports stand above the pier. See cut at top of opposite page.

When it is desirable to continue the movement of freight in a straight line after reaching the wharf level, horizontal carriers of any desired length are employed. These have an adjustable outboard end arranged to raise and lower, as illustrated by lower cut on same page.



PLATFORM CONVEYOR
ELECTRIC STORAGE BATTERY CO., PHILADELPHIA, PA. CARRIES HOT ZINC PLATES FROM MOULDS TO SAWS.



CARRIER FOR LOGS AND MINE TIMBERS
340 FEET LONG. CALUMET & HECLE MINING CO., LAKE LINDEN, MICH.

Inclined Carriers

For Freight and Packages

ARE made in many forms to suit conditions. The types here shown are employed for transporting either on an incline or in a horizontal direction, or both, as illustrated in Fig. 2.

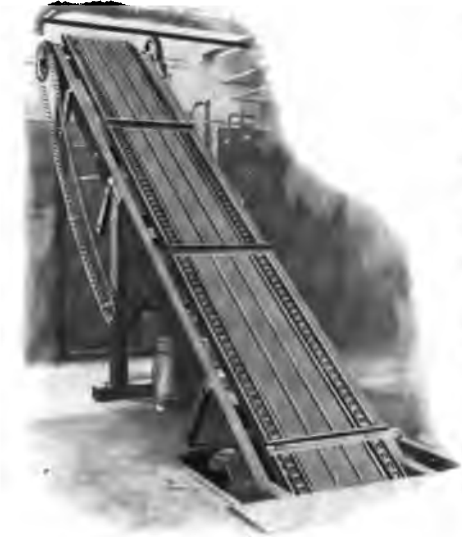


FIG. 1

Modifications of types shown by Figs. 1 and 3 are extensively employed by mercantile and manufacturing establishments for delivering miscellaneous packages from basements to sidewalks.

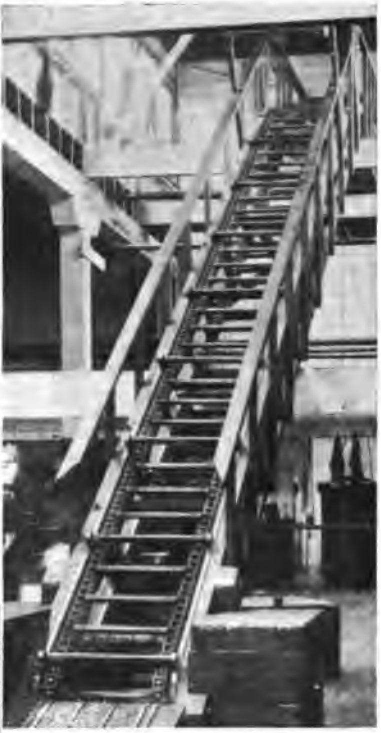


FIG. 2

While the elevators here indicated are designed for comparatively light work, similar types are also constructed for heavy loads and severe service.

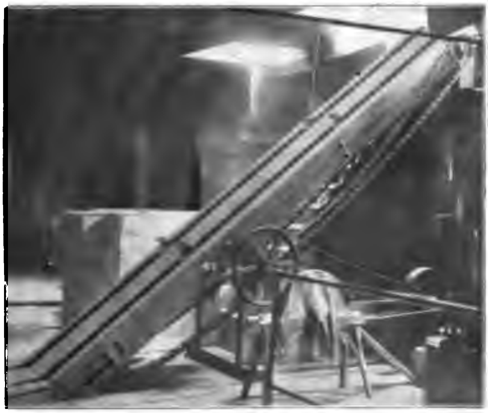
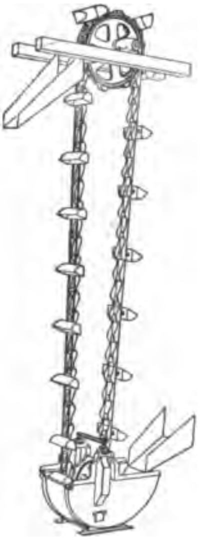


FIG. 3

Elevators and Conveyors

OF the many standard Link-Belt Appliances in general use, some of the types more commonly employed are indicated on the following pages:

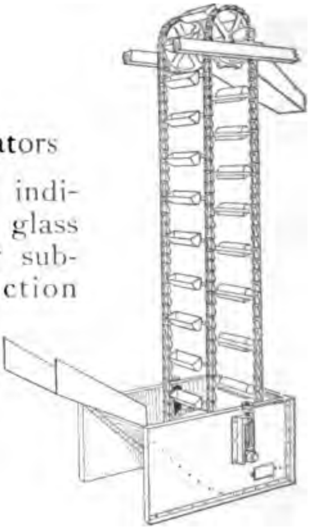
ELEVATORS



The Ordinary Link-Belt Elevator

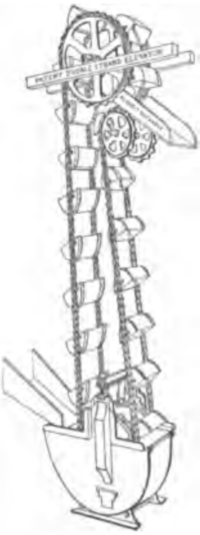
As shown travels at high speed, and discharges by centrifugal force. This is the simplest form of elevator, and one more generally used than any other.

For handling heavy and gritty materials, malleable iron buckets and Ley bushed chain are employed.



Double Strand Elevators

With spacing bars indicated, for foundry or glass sand, and like cutting substances. This construction keeps the chains comparatively clear of the material handled, and greatly prolongs the service of the links.

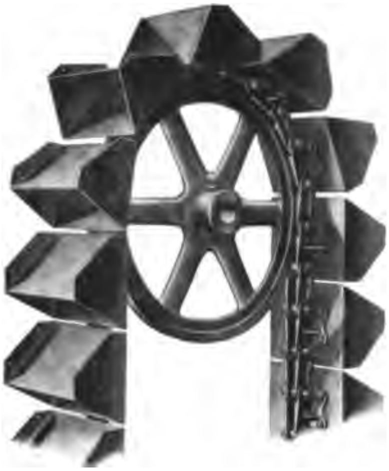


Perfect Discharge Elevators

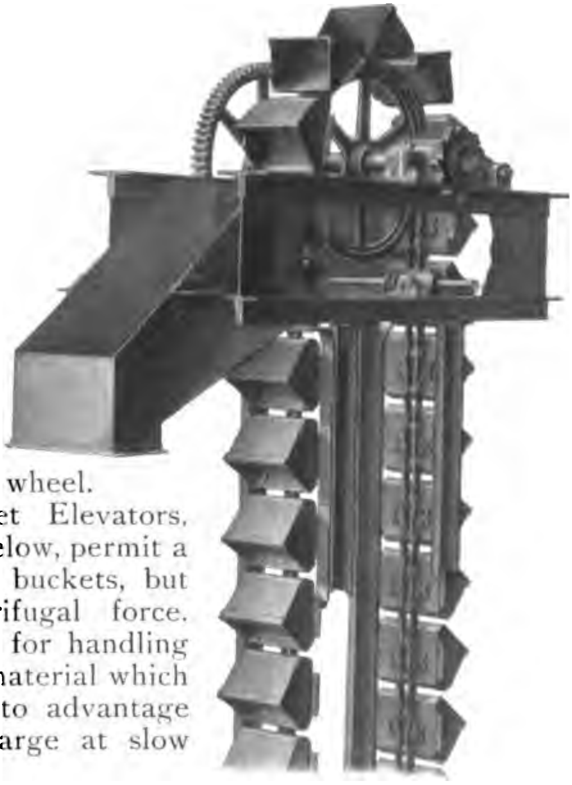
Permit the use of spaced buckets, and by completely inverting them make clean delivery into chute at elevator head. They are run at medium speeds, and have met with much favor for handling breakable substances or materials which tend to cling to the buckets.

"Link-Belt" Standard Single Strand Continuous Bucket Elevator

For Handling Coal, Broken Stone, Sand, Gravel, etc.

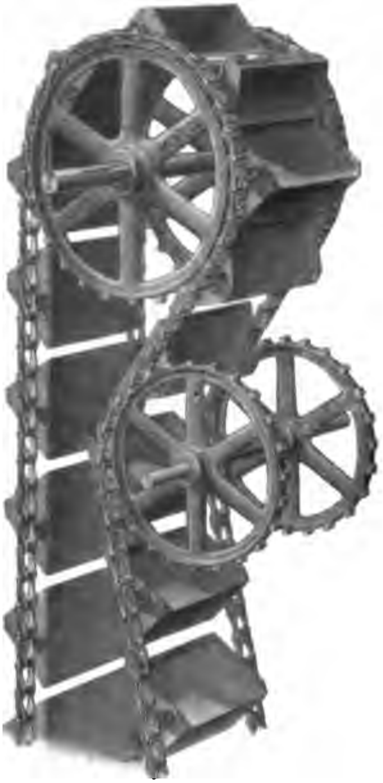


THE flanged front of each bucket forms a chute for the discharge from the succeeding bucket, thus effecting a clear discharge at slow speed. It also permits the material being fed directly into the buckets, avoiding the excessive breakage of materials and severe strain on machinery, which results from a dredging action in an elevator boot.



Elevators of this type are provided with buckets having angular bottoms and slightly separated, as shown above, or with round bottom over lapping buckets (not illustrated). The latter construction insures a cleaner discharge, and effectually prevents fine material from spilling between the buckets, while passing around the head wheel.

Continuous Bucket Elevators, of the type shown below, permit a direct feed into the buckets, but discharge by centrifugal force. They are employed for handling wet pulp or other material which cannot be dredged to advantage and will not discharge at slow speeds.



The Centrally Hung, Continuous Bucket Elevator

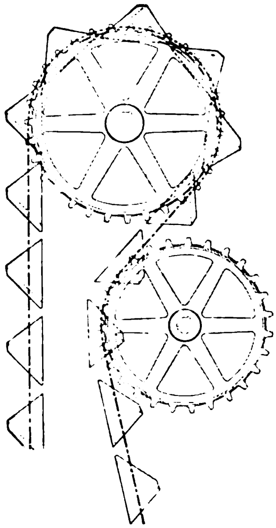
COMBINES the features of the Standard Continuous Bucket and Perfect Discharge Elevators, insuring a clear discharge of material which flows with reluctance.

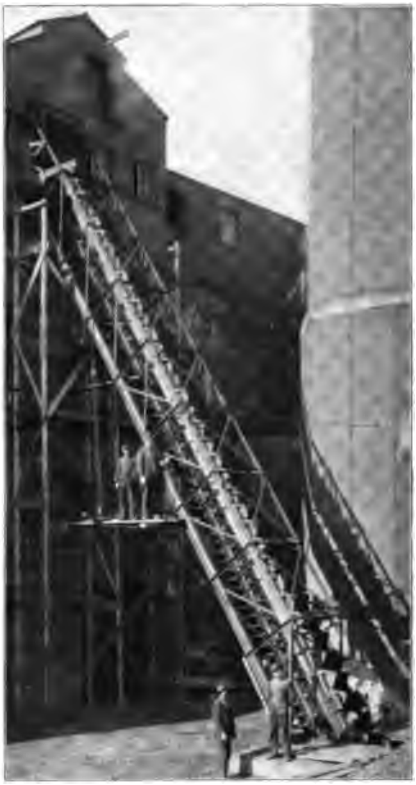
It travels at slow speed and permits the material being fed directly into the bucket.

No elevator boot is necessary.

The outline sketch shows relative positions of buckets at all times. Note how they overlap each other when discharging.

Elevators of this type are made in a variety of forms to suit conditions, and with buckets which overlap at all times, if desired.

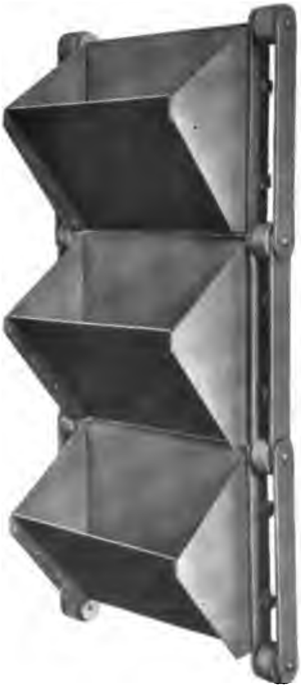


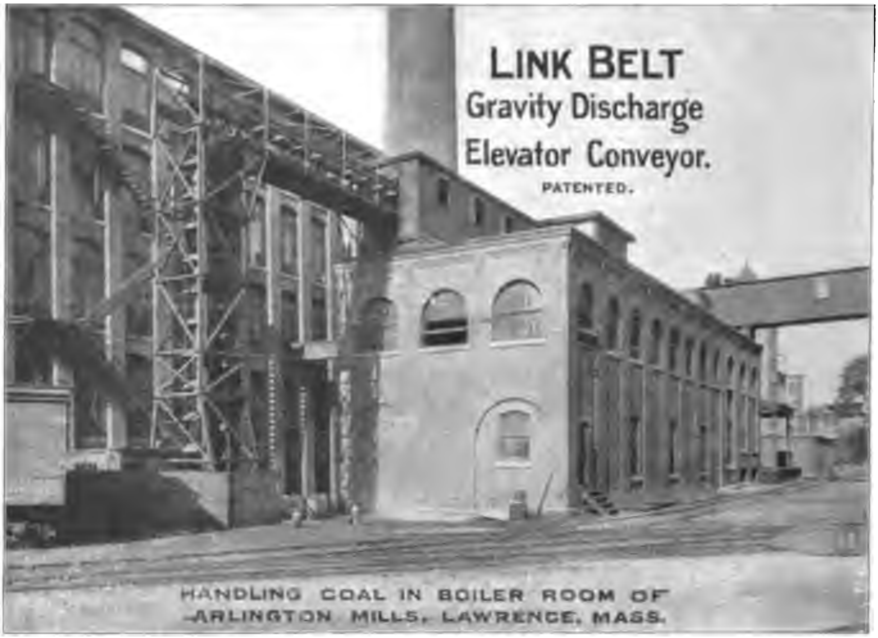


Inclined Continuous Bucket Elevators

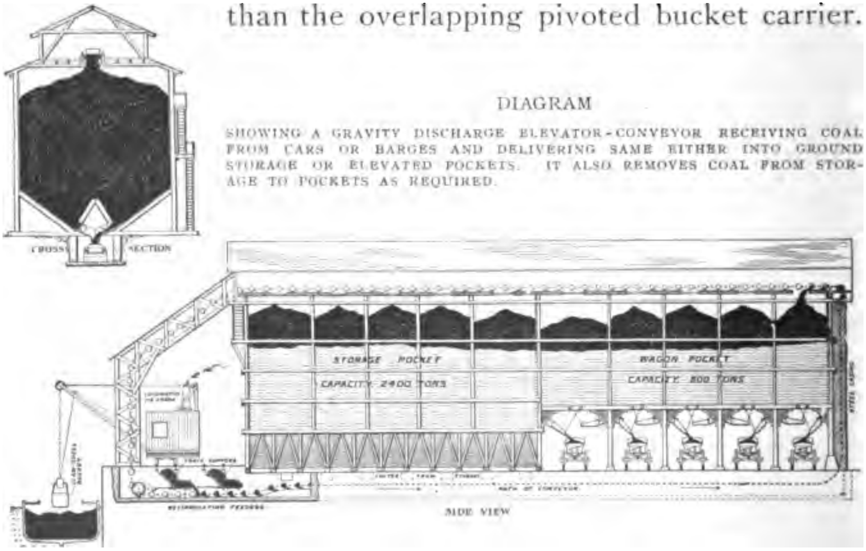
The highly efficient and serviceable type of elevator here shown is employed for handling coal, stone, ores, etc., containing large lumps, or where large capacities are required. Steel link rolling chains are attached to the buckets at either end in such a manner that the rollers can travel on runways, supporting the load, and insuring a smooth and uniform movement of the bucket line. When conditions require, the chains are fitted with removable steel bushings and plain or flanged self-oiling rollers.

The buckets being attached on the pitch line of the chain preserve a close formation at all times, which effectually prevents material from spilling. This construction is employed to equal advantage in vertical elevators of large capacities.




LINK BELT
Gravity Discharge
Elevator Conveyor.
PATENTED.
HANDLING COAL IN BOILER ROOM OF
ARLINGTON MILLS, LAWRENCE, MASS.

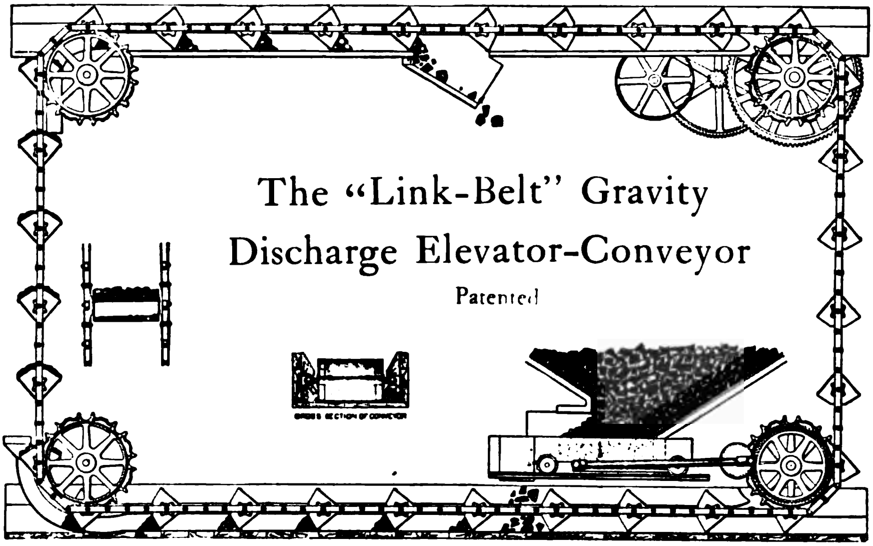
WHILE the Gravity Discharge Elevator-Conveyor is extensively employed for handling lump coal in boiler rooms, it is not suitable for handling ashes or other abrasive materials, and is less economical in the handling of small coal than the overlapping pivoted bucket carrier.



DIAGRAM

SHOWING A GRAVITY DISCHARGE ELEVATOR-CONVEYOR RECEIVING COAL FROM CARS OR BARGES AND DELIVERING SAME EITHER INTO GROUND STORAGE OR ELEVATED POCKETS. IT ALSO REMOVES COAL FROM STORAGE TO POCKETS AS REQUIRED.

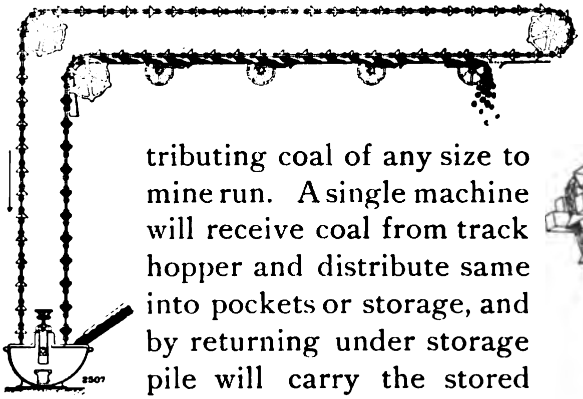
The arrangement here indicated can be changed in many ways to suit conditions.

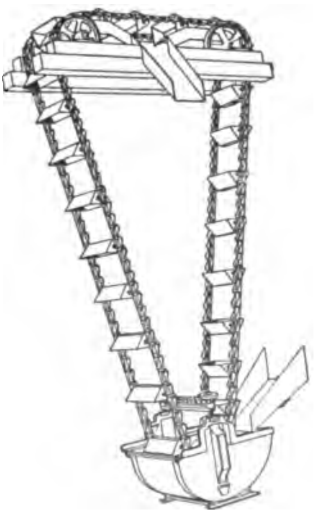


The "Link-Belt" Gravity Discharge Elevator-Conveyor

Patented

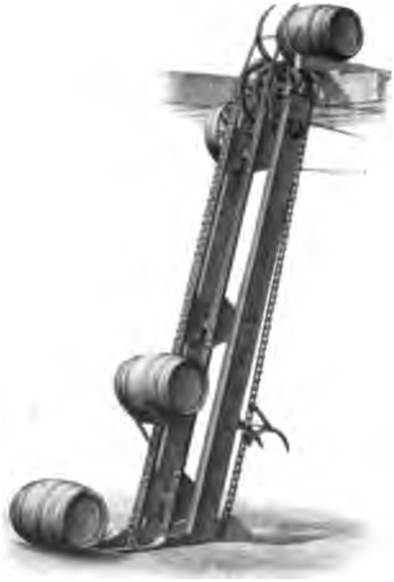
THE buckets are rigidly and centrally attached to the chains, as in the Perfect-Discharge type; but instead of dropping the coal or other material after passing the head wheels, the buckets take the position of conveyor flights and move the material horizontally to any desired point of discharge, handling and distributing coal of any size to mine run. A single machine will receive coal from track hopper and distribute same into pockets or storage, and by returning under storage pile will carry the stored coal to pockets as required. It can be applied to almost any arrangement or conditions, but is not adapted to handling gritty materials.





Standard Barrel, Keg, and Sack Elevator

These Prices are for Machinery Only

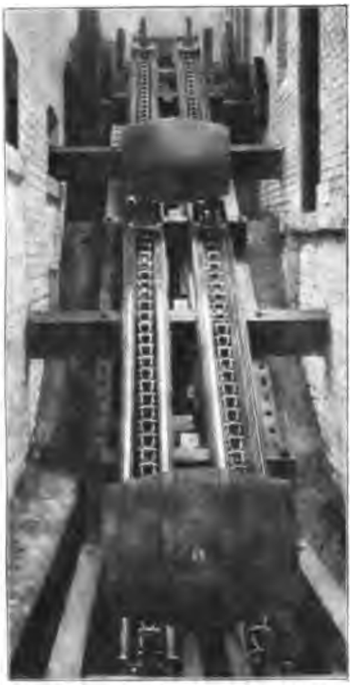


AND do not include any driving pulleys or belt, but include balance of driving machinery shown in cut. The woodwork is simple, and can be constructed economically on the grounds.

Styles A and B have 16-inch wheels and small arms, A being for light or small sacks, B for brewery work, kegs, etc., up to barrels. Styles C and D have 24-inch wheels and large arms, C being for empty or light barrels, D for general barrel elevator work. For large barrels we make special elevators.

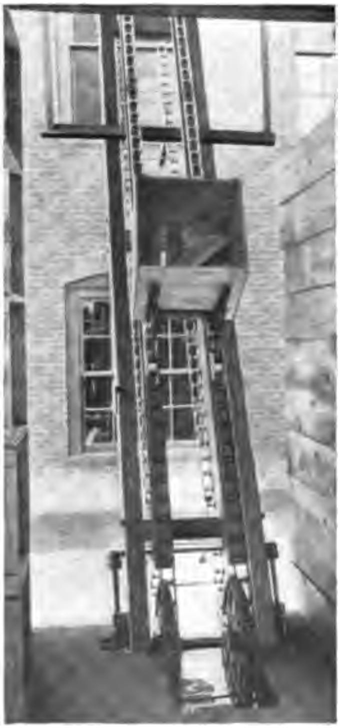
Estimates submitted on receipt of particulars.

Style.	Length from C. to C. in ft	3 Arms.	4 Arms.	5 Arms.	6 Arms.	Ex. Arms per set.
A	10	$65 00	$67 60	$70 20	$72 80	$2 60
	15	71 20	73 80	76 40	79 00	
	20	77 40	80 00	82 60	85 20	
	25	83 60	86 20	88 80	91 40	
	30	89 80	92 40	95 00	97 60	
B	10	76 20	78 80	81 40	84 00	$2 60
	15	86 20	88 80	91 40	94 00	
	20	96 20	98 80	101 40	104 00	
	25	106 20	108 80	111 40	114 00	
	30	116 20	118 80	121 40	124 00	
C	10	76 30	80 00	83 70	87 40	$3 70
	15	82 50	86 20	89 90	93 60	
	20	88 70	92 40	96 10	99 80	
	25	94 90	98 60	102 30	106 80	
	30	101 10	104 80	108 50	112 20	
D	10	89 90	93 60	97 30	101 00	$3 70
	15	99 90	103 60	107 30	111 00	
	20	109 90	113 60	117 30	121 00	
	25	119 90	123 60	127 30	131 00	
	30	129 90	133 60	137 30	141 00	

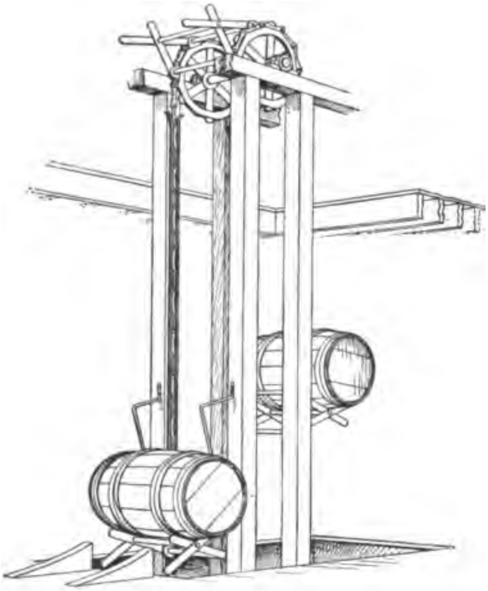


ELEVATORS of the general type shown on opposite page are modified in many ways to suit conditions. Where the grade is comparatively low, and heavy packages are handled, it is often advisable to support the carrying arms on rollers, as shown.

It is also employed for handling logs of wood, rolls of cloth, paper, etc., boxes, laths, spokes, staves, bolts, and a variety of similar material. Straight arms are often substituted, as also shown.



Crossed-Arm Barrel Elevator

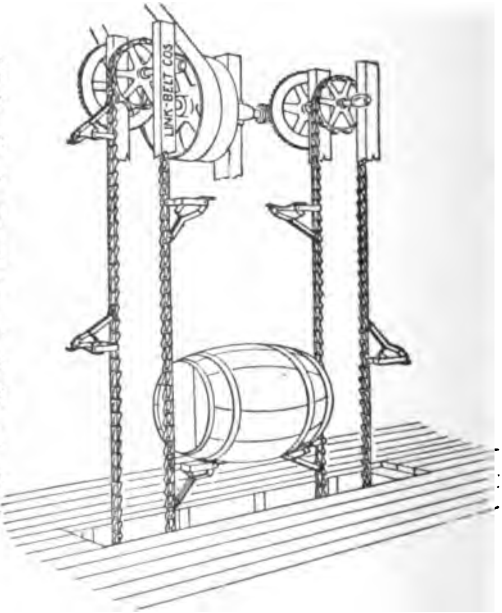


ONE of the least costly forms of automatic pick-up and discharge elevator. By the substitution of movable cams, instead of stationary discharging brackets, barrels can be delivered at any one of several floors. They will simultaneously elevate barrels on one side and lower on the other, as shown. Employed for handling comparatively light barrels only.

The Contact-Discharge Barrel Elevator

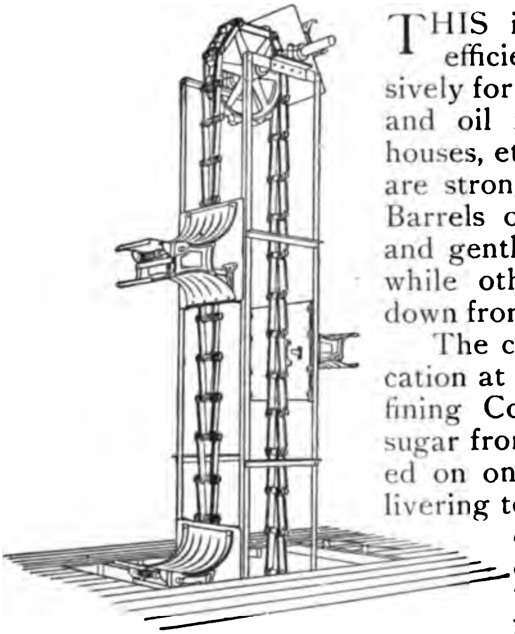
Patented

IS chiefly used for raising oil, lard, pork, and other heavy barrels, which are carried up by cradles attached to the chains, and rolled off at the designated floor by cam-shaped pushers (not shown in cut). These elevators are made in several forms, one of which, designed to stand against a wall with as little projection as possible, is illustrated herewith.



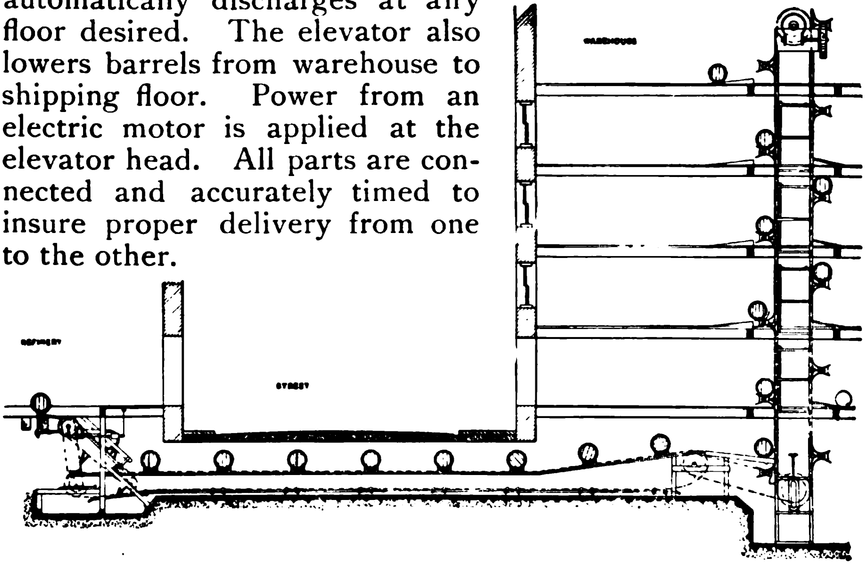
Automatic Discharge Barrel and Sack Elevator

Patented June 9, 1896



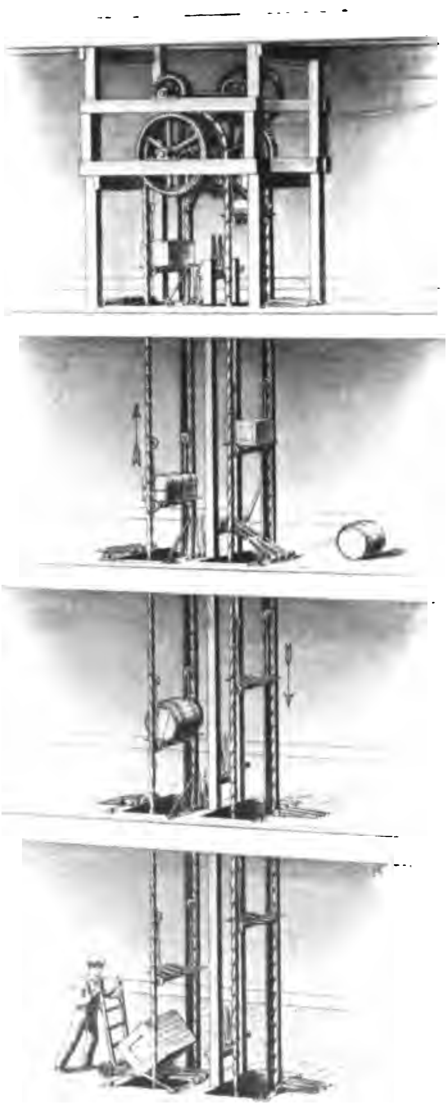
THIS is a very complete and efficient machine, used extensively for barrel handling in sugar and oil refineries, railroal warehouses, etc. The automatic arms are strong and perfect in action. Barrels or sacks are carried up and gently delivered on any floor, while others are being carried down from any floor to the ground.

The cut below shows its application at the McCahan Sugar Refining Co., receiving barrels of sugar from floor of refinery located on one side of street and delivering to any floor of warehouse on opposite side. The entire action is automatic. The barrels are received by a lowering device and deposited on to the trucks of a horizontal carrier passing under the street. This in turn delivers to an elevator which automatically discharges at any floor desired. The elevator also lowers barrels from warehouse to shipping floor. Power from an electric motor is applied at the elevator head. All parts are connected and accurately timed to insure proper delivery from one to the other.



Automatic Suspended Tray Elevator

For Raising and Lowering Miscellaneous Packages

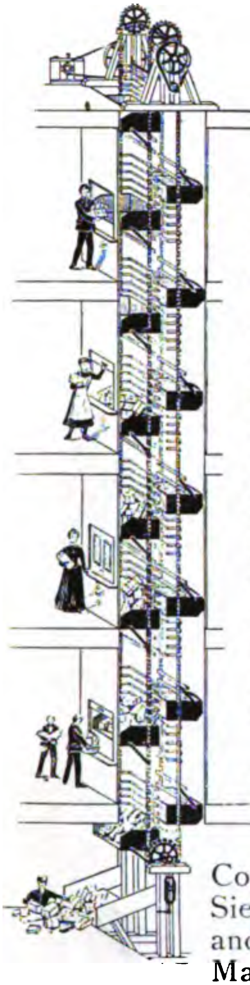


IT consists of a series of trays or carriers suspended at intervals between two endless chains. Each tray is composed of a center bar with transverse arms, attached to the chain by hangers at either end. It moves continuously, all freight being received on the ascending, and discharged on descending side.

Receiving and discharging brackets, having arms arranged to intermesh with the arms on trays, are provided at each floor. Freight placed on any receiving bracket is taken off by the first ascending tray, is carried up, passes in a suspended position between the head wheels, and down on the opposite side until the delivery point is reached. Here the discharging arms, which are set on an angle, permit the tray to pass, but intercept and remove the load.

The receiving and discharging arms are hinged and are all thrown out of position excepting those in actual use.

Large numbers of these elevators are in use throughout the country. They are built of any height required, and to suit size and weight of packages.



Handling Parcels in Department Stores, Mail Order Houses, Etc.

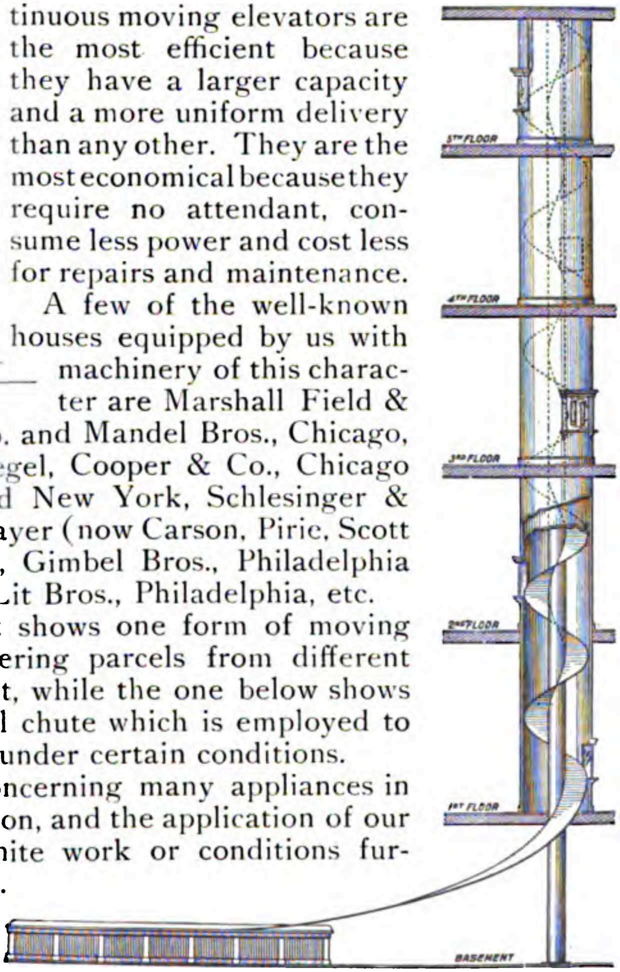
IN no field is economy and despatch of more importance than in the handling of miscellaneous parcels in a modern department store or mail order house.

To insure a prompt and uniform movement from the several floors to the mailing, shipping, and local delivery departments, the employment of elevators and carriers is essential. Our automatic continuous moving elevators are the most efficient because they have a larger capacity and a more uniform delivery than any other. They are the most economical because they require no attendant, consume less power and cost less for repairs and maintenance.

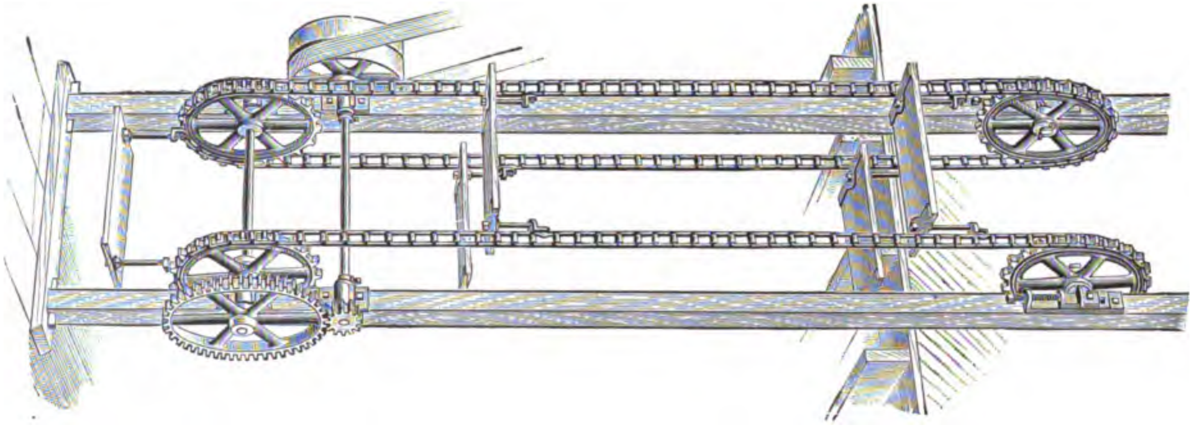
A few of the well-known houses equipped by us with machinery of this character are Marshall Field & Co. and Mandel Bros., Chicago, Siegel, Cooper & Co., Chicago and New York, Schlesinger & Mayer (now Carson, Pirie, Scott & Co.), Chicago, Gimbel Bros., Philadelphia and Milwaukee, Lit Bros., Philadelphia, etc.

The above cut shows one form of moving elevator for lowering parcels from different floors to basement, while the one below shows a stationary spiral chute which is employed to equal advantage under certain conditions.

Information concerning many appliances in successful operation, and the application of our methods to definite work or conditions furnished on request.



Tile Elevators



Price List of Tile Elevators on No. 45 link-belt, with 18x11 Trays, 10-inch drop, arranged to drive at the foot, complete except driving gear and frame work.

Height between Centers of Wheels.	4 Trays.	5 Trays.	6 Trays.	7 Trays.	8 Trays.
10 feet......	$30.00	$31.40	$32.80	$34.20	$35.60
15 "	32.60	34.00	35.40	36.80	38.20
20 "	35.20	36.60	38.00	39.40	40.80
25 "	37.80	39.20	40.60	42.00	43.40
30 "	40.40	41.80	43.20	44.60	46.00
35 "	43.00	44.40	45.80	47.20	48.60
40 "	45.60	47.00	48.40	49.80	51.20

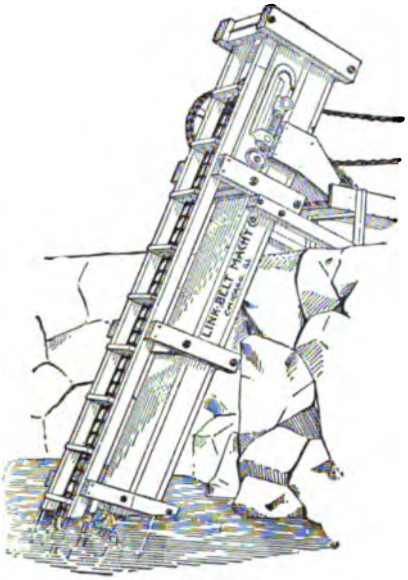
Driving Gear for above, as shown in cut, $19.50.
Extra Trays, $1.40 each.

Price List of Tile Elevators on No. 57 link-belt, with 30x21 Trays, 16-inch drop, arranged to drive at foot, complete except driving gear and frame work.

Height between Centers of Wheels.	4 Trays.	5 Trays.	6 Trays.	7 Trays.	8 Trays.
10 feet......	$57.20	$61.80	$66.40	$71.00	$75.60
15 "	60.80	65.40	70.00	74.60	79.20
20 "	64.40	69.00	73.60	78.20	82.80
25 "	68.00	72.60	77.20	81.80	86.40
30 "	71.60	76.20	80.80	85.40	90.00
35 "	75.20	79.80	84.40	89.00	93.60
40 "	78.80	83.40	88.00	92.60	97.20

Driving Gear for above, as shown in cut, $26.50.
Extra Trays, $4.60 each.

The "Link-Belt" Box Water Elevator


LINK-BELT MACH'Y CO.
CHICAGO, ILL.

is the simplest and most economical means of lifting water yet designed. It has been in successful operation for the past 15 years in the irrigation districts of the West, and large numbers are used for flooding ponds, draining marshes, clay pits, etc. There are no dead-centers or return strokes, consequently a steady flow is always assured. Simple in construction and easily repaired.

Prices on larger elevators furnished on application stating capacity in gallons per minute, and lift.

In ordering Driving Machinery please give:

1. **Diameter of driving shaft;**
2. **Number of turns per minute made by driving shaft;**
3. **Distance of driving shaft from elevator head shaft; and**
4. **State whether driving shaft and head shaft will revolve in the same or opposite directions.**

We do not manufacture or deal in wind mills, water wheels, or engines of any kind. For prices on these apply to a local dealer, or the manufacturer.

Price List

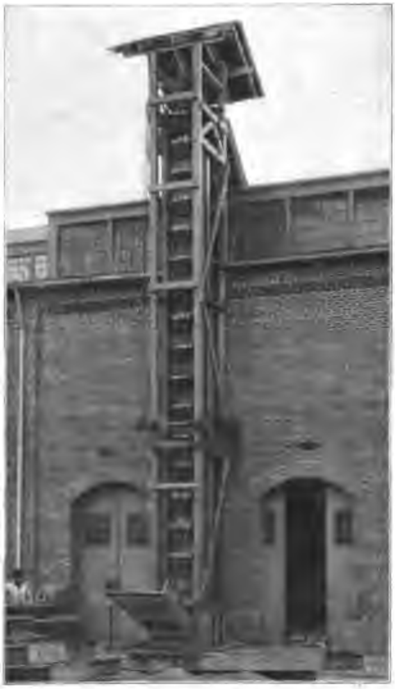
MACHINERY OUTFIT. (Including head and foot shafts, with gap wheels, journal boxes, take-ups and collars, and necessary elevator belting with flights.) Without wood-work or driving connections.

Number of Elevator	Gallons per Minute	Steam Horse Power for 10 Ft. lift	10 Foot Lift	15 Foot Lift	20 Foot Lift	25 Foot Lift	30 Foot Lift
1	300	1	$37.00	$43.00	$49.00	$55.00	$61.00
2	600	2	47.00	53.50	60.00	66.50	73.00
3	700	2½	48.00	55.00	62.00	69.00	76.00
4	900	3	68.00	76.00	84.00	92.00	100.00
5	1100	3½	71.00	79.50	88.00	96.50	105.00
6	1500	4½	115.00	130.00	145.00	160.00	175.00
7	2200	7	125.00	141.00	157.00	173.00	189.00

WOOD-WORK OUTFIT. (Including discharge spout, but not outside braces, supports, or trough.)

Number of Elev'r			10 Foot Lift	15 Foot Lift	20 Foot Lift	25 Foot Lift	30 Foot Lift
1			$40.00	$52.00	$70.00	$79.00	$88.00
2			50.00	62.00	80.00	90.00	100.00
3			56.00	68.00	88.00	99.00	110.00
4			66.00	80.00	100.00	112.00	124.00
5			76.00	90.00	112.00	125.00	138.00
6			100.00	116.00	140.00	154.00	168.00
7			120.00	140.00	170.00	185.00	200.00

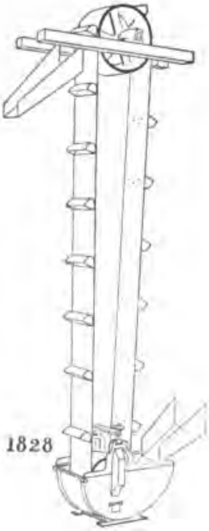
Belt Elevators



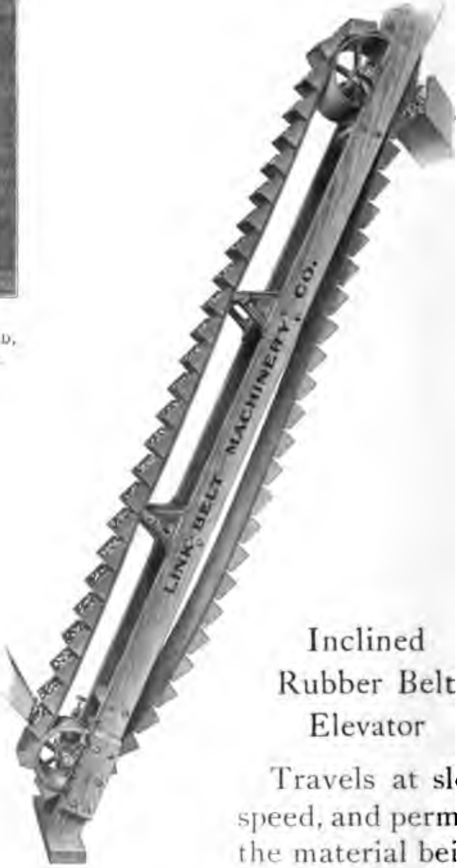
VERTICAL ELEVATOR HAVING BUCKETS SPACED, AND DISCHARGING BY CENTRIFUGAL FORCE.

USING high grade rubber and stitched or woven canvas belt.

While elevators of this type are often employed for handling highly abrasive materials, Link-Belt Elevators, if properly constructed, are more serviceable and economical.



1828

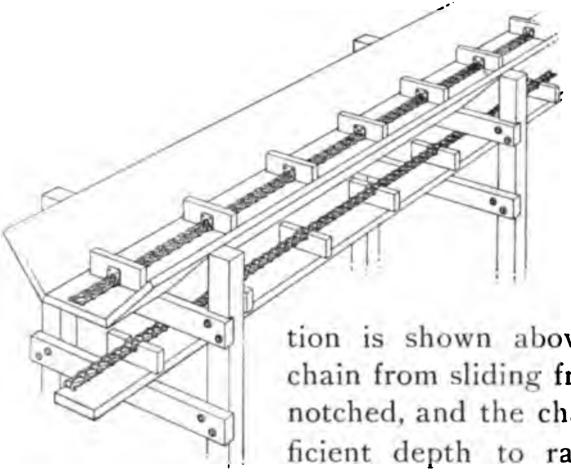


Inclined
Rubber Belt
Elevator

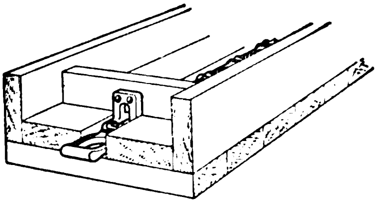
Travels at slow speed, and permits the material being fed directly into the buckets.

Conveyors

The Single Strand Flight Conveyor



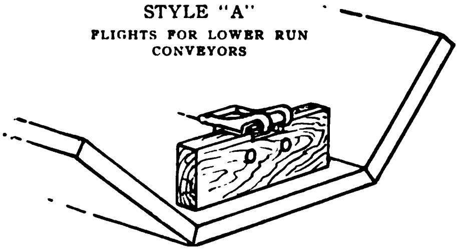
Extensively employed for handling sawdust, grain or other bulk material not of a gritty nature. Its most common form of construction is shown above. To relieve the chain from sliding friction the flights are notched, and the chain inserted to a sufficient depth to raise it clear of the trough bottom.



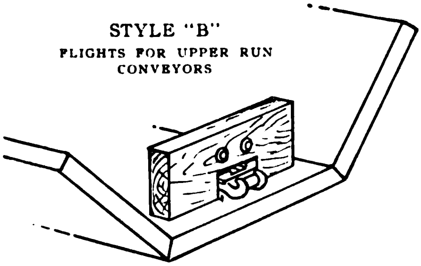
This result can be obtained without notching the flights, by running the chain in a recess formed in trough bottom, as also shown.

Material is often carried on the lower instead of the upper side, and if desired both sides may be utilized to carry in opposite directions.

STYLE "A"
FLIGHTS FOR LOWER RUN CONVEYORS

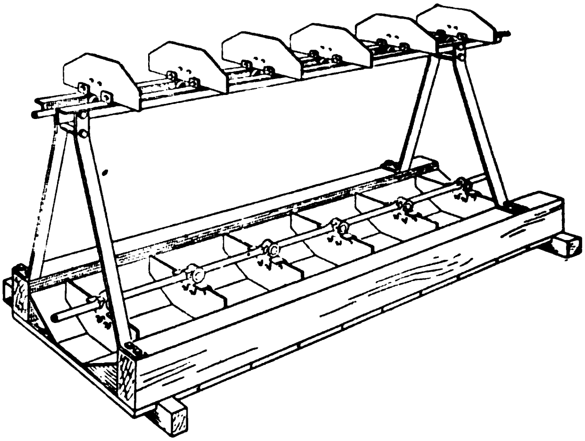


STYLE "B"
FLIGHTS FOR UPPER RUN CONVEYORS



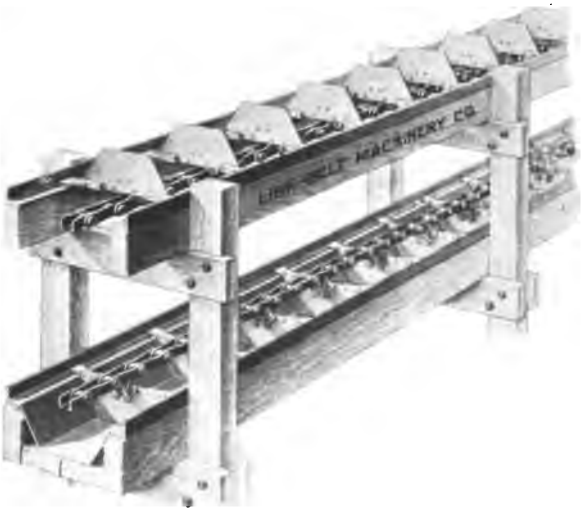
In ordering flights, state whether style "A" or "B" is wanted.

Single Strand Flight Conveyor—continued

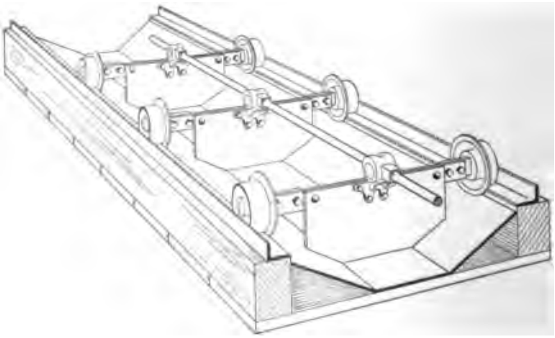


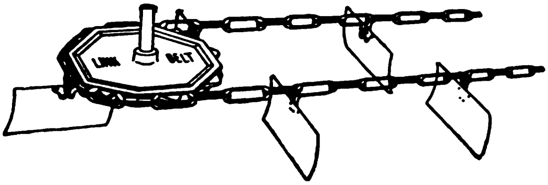
STEEL Flights with Angle Iron Wearing Shoes for return.

A type of conveyor very commonly employed for handling small coal and similar non-gritty materials. The vibration caused by the flights dragging on trough bottom often results in an objectionable degree of noise. We effectually prevent this by attaching cast iron wearing blocks to the flights at either end, as shown. These travel in runways, holding the flight clear of the trough.



Plain or self-oiling rollers are usually substituted for wearing shoes if the length of conveyor is excessive.



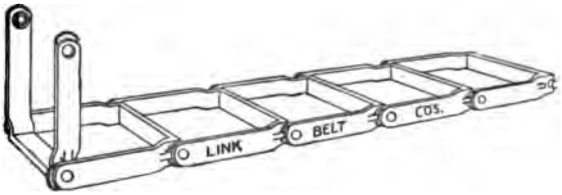


For Conveying in Two or More Directions in Same Plane

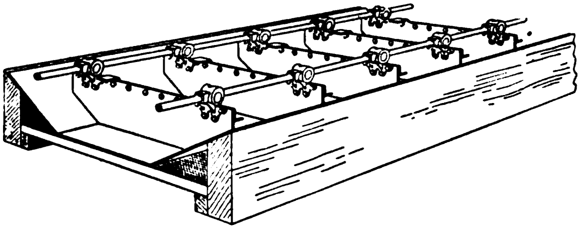
SWINGING Conveyors of this type are employed for reloading anthracite coal by the Dodge system, reclaiming coal from culm banks, etc.

Refuse Chain Conveyors

Are of the Flightless Conveyor type, and are chiefly used for moving sawdust, slabs, and sawmill offal.

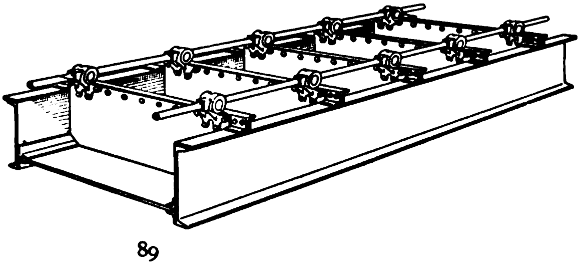


Double Strand Flight Conveyors

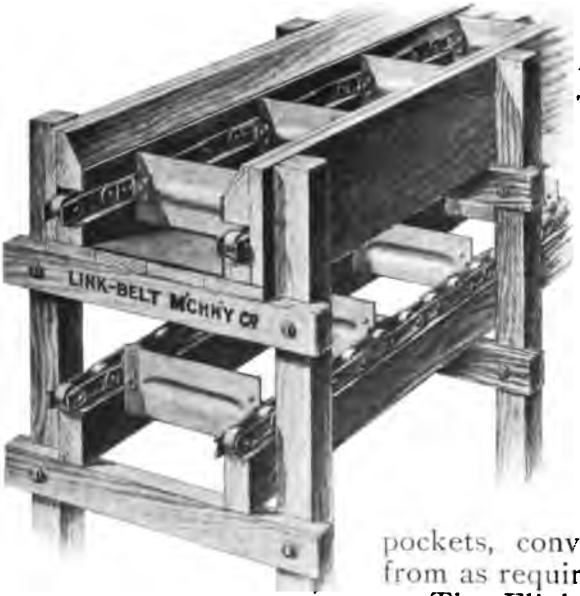


For rough and ready work and for very large capacities are here shown.

In its simplest form the flights are unsupported and drag on the trough bottom, as above. To reduce friction and noise, however, they are usually supported by wearing shoes, as indicated below, or by rollers.



Rolling Chain Conveyor with Flights Centrally Hung



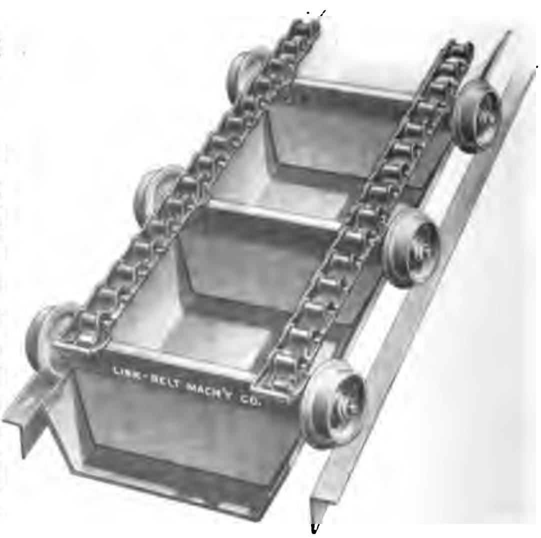
ARE made of any width desired and will handle coal of any size to mine run.

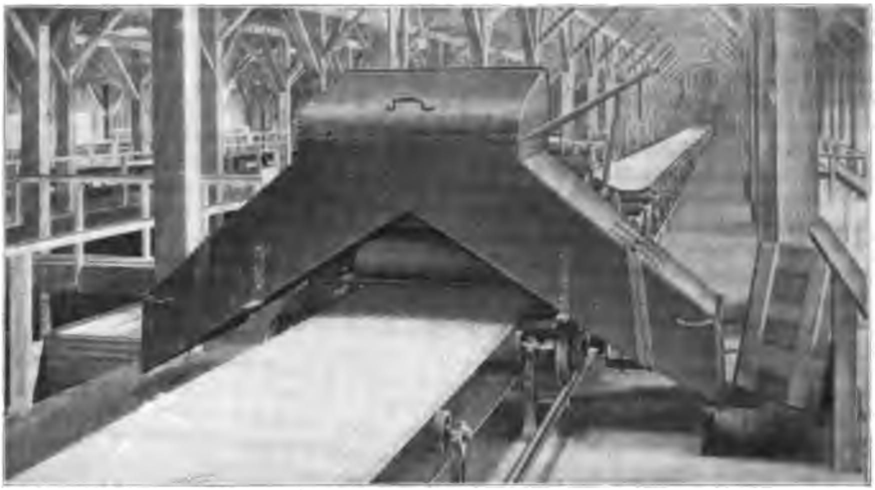
As it will convey to equal advantage on both the upper and lower sides, a single Conveyor is often employed to distribute coal from an elevator into storage pockets, and by returning underneath the pockets, convey the coal therefrom as required.

The Flights are embossed in center to increase stiffness, and are secured to chain by either rigid or hinged attachments.

Double Strand Suspended Flight Conveyors

Are often employed for handling cement clinkers, tempered sand, etc. The trough is made of cast iron and the supporting rollers are fitted with case hardened steel bushings. If operated in an atmosphere of flying grit, Ley Bushed Chains are employed.


LINK-BELT MACH'Y CO.



FLAT BELT CONVEYORS

GENERAL VIEW OF CONVEYOR FLOOR OF MINNESOTA ELEVATOR (ARMOUR & CO.), CHICAGO, SHOWING ONE OF THREE 40-INCH BELT CONVEYORS AND SELF-SUPPORTING TRIPPER. THE STEEL ROLLS WHICH SUPPORT THE BELT ARE CARRIED ON COMBINATION HIGH AND LOW STANDS, WITH CHAIRS FOR THE RAILS ON WHICH THE TRIPPER TRAVELS.

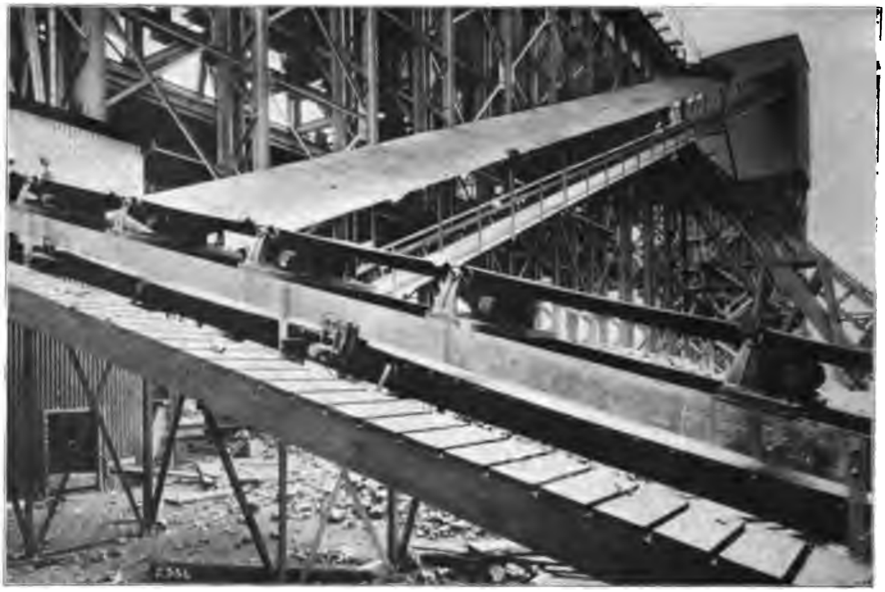
Belt Conveyors

WE have for the past twenty years employed rubber and cotton belts for conveying purposes, when the character of material to be handled and conditions involved are favorable to that method of transportation. This statement is made advisedly for the reason that Belt Conveyors appeal strongly to most persons from the rather superficial impression given that they possess simplicity and relative lightness of moving parts. This impression has led to the use of Belt Conveyors in many cases where other forms would have been found more efficient and durable.

A more thoughtful consideration of the subject will show that Belt Conveyors contain a great many parts which require more or less constant attention to maintain in proper running order, and a great many moving parts of considerable aggregate weight which must be kept in motion at high speeds. The best belts, furthermore, require frequent renewal, so that the first impression of simplicity and economy of power is to a considerable extent erroneous.

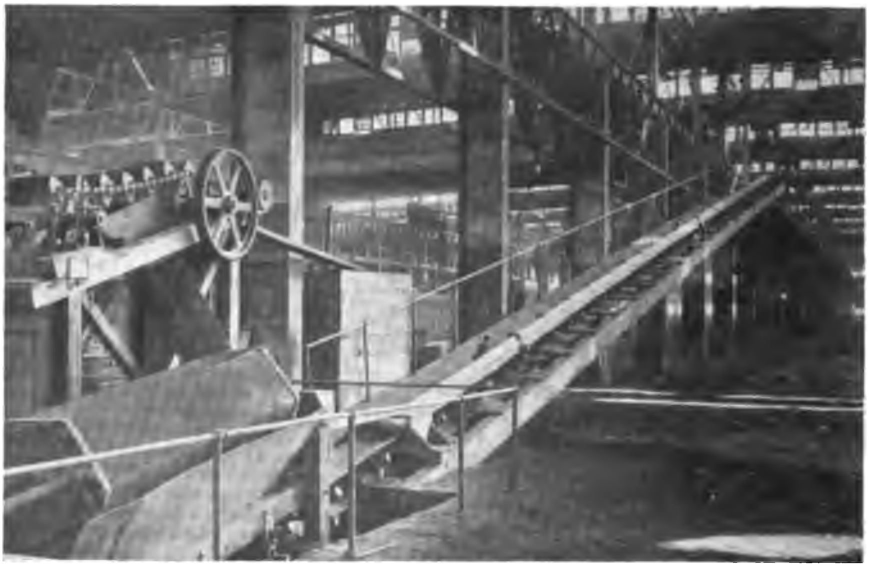
Our Belt Conveyors are designed to secure the best returns on the amount invested, the cost of installation and maintenance being so proportioned as to insure durability and efficiency rather than low first cost at the expense of both.

(CONTINUED ON PAGE 93.)



HANDLING BI-PRODUCT COKE

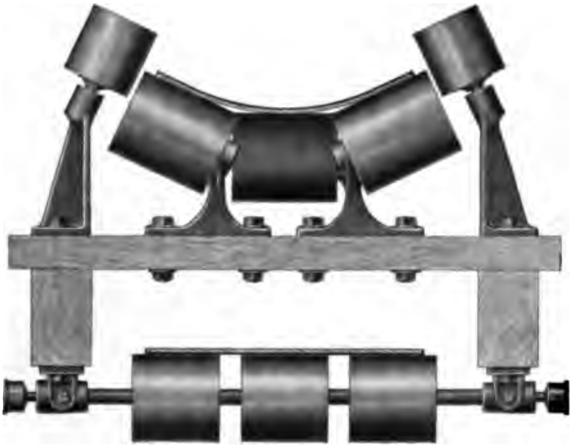
SYSTEM OF INCLINED RUBBER BELT CONVEYORS HANDLING COKE AT THE BI-PRODUCT PLANT OF THE PUBLIC SERVICE CORPORATION, CAMDEN, N. J.



HANDLING SAND

RUBBER BELT CONVEYOR, RECIPROCATING CONVEYOR, AND LEY BUSHED CHAIN ELEVATOR, NATIONAL MALLEABLE CASTINGS CO., CHESTER, PA.

Our experience has taught us that the best results are obtained when the following principles are observed:



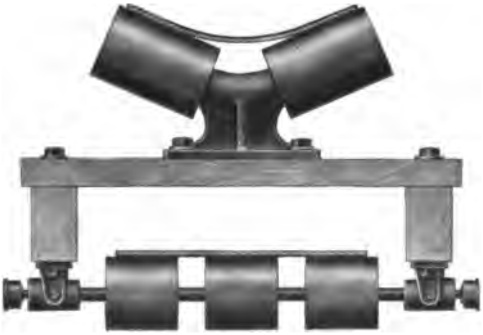
THREE ROLL STANDS FOR BELTS OF MEDIUM WIDTHS, EQUIPPED WITH BALL BEARING ROLLS.

FIRST.—The Belt should be of a quality suited to the work and of uniform strength throughout its width. There should be no weakening of the belt in the center where the load is carried, and no variations in strength crosswise which would result in an unequal stretch.

SECOND.—Troughing belts should be so shallow that the belt is not forced to bend beyond its economical elastic limit, and the troughing rolls should be so designed as to insure a natural and uniform curve of the belt. Localizing the bending concentrates the fibre stress at one or more points and rapidly destroys the belt structure.

THIRD.—Troughing rolls should present no exposed edges against which the belt can wear when heavily loaded.

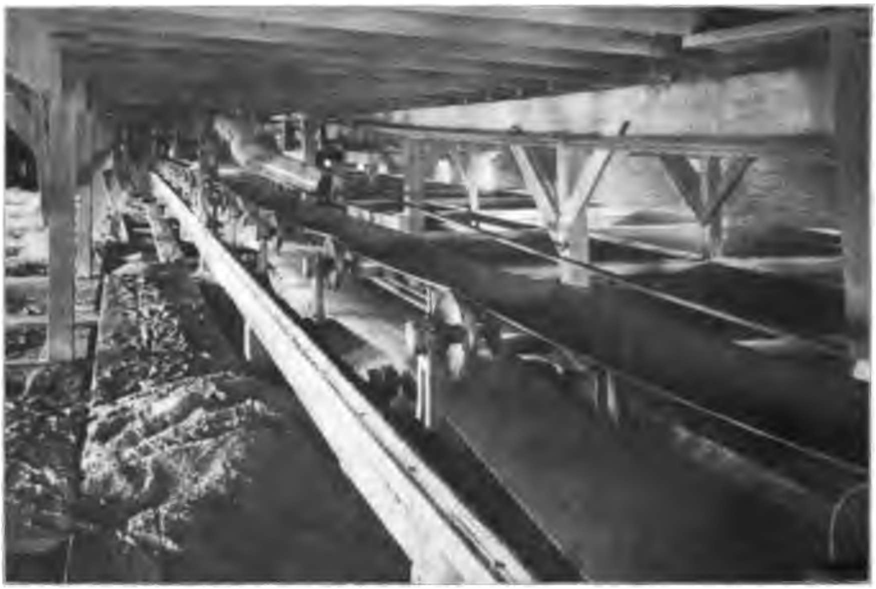
FOURTH.—The face of roll pulleys and belt surface should travel at the same speed at every point of contact, and the rolls should offer the least possible resistance to the belts movement. Not only does the degree of roll resistance practically govern the consumption of power, but it causes the belt to slip and rapidly destroys its surface by frictional wear.



TWO ROLL STANDS FOR NARROW BELTS, EQUIPPED WITH BALL BEARINGS.

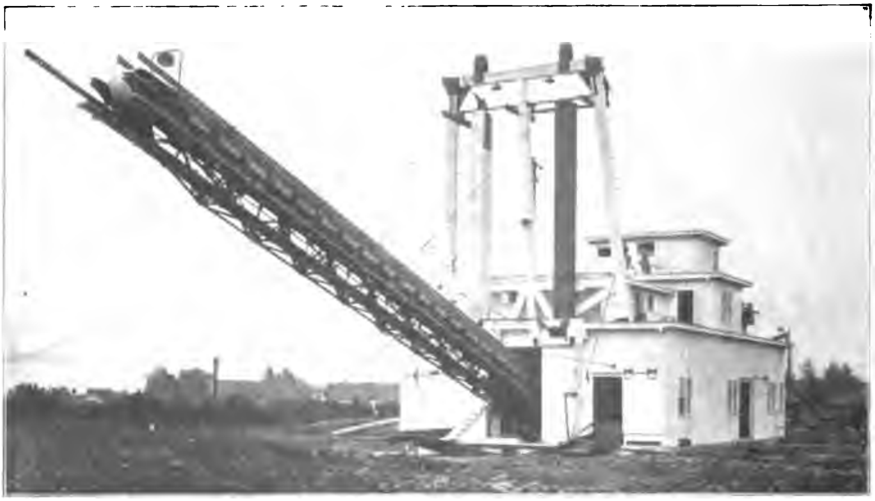
Our BALL-BEARING rolls represent the highest development in belt conveying. These afford the least resistance to the belts movement and largely do away with the constant personal attention required by ordinary lubricated rolls.

Special booklet No. 48, now in press, containing much information of value to those interested in the economical operation of belt conveyors, will be mailed on request.



BELT CONVEYOR WITH DISHPAN ROLLS

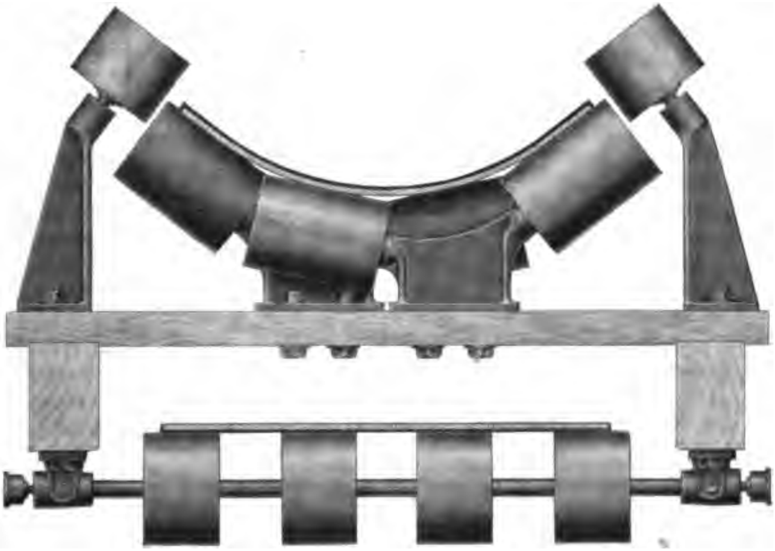
DISTRIBUTING FINISHED CEMENT IN STORAGE HOUSE



BELT CONVEYOR TAILING STACKERS

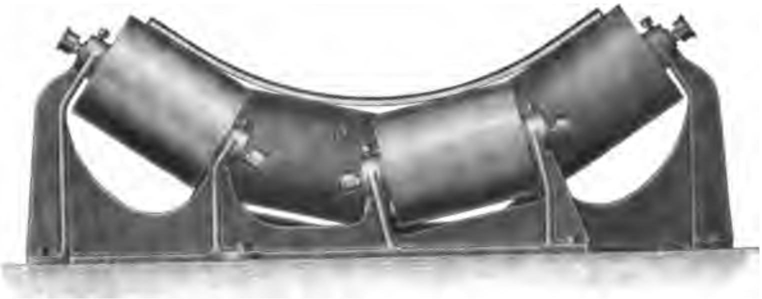
PHOTOGRAPH OF LINK-BELT GOLD DREDGE, TAKEN UNDER CONSTRUCTION, SHOWING RUBBER BELT TAILING STACKER IN POSITION. OWING TO THE SEVERE STRAIN INCIDENT TO THE HANDLING OF LARGE LUMPS AND HEAVY LOADS, CONCENTRATING ROLLS OF THE TYPE SHOWN AT BOTTOM OF OPPOSITE PAGE ARE USUALLY EMPLOYED IN WORK OF THIS CHARACTER.

Troughing Rolls for Wide Belts



BALL-BEARING FOUR-ROLL STANDS FOR WIDE BELTS

OUR FOUR-ROLL TROUGHING STANDS BEST MEET THE CONDITIONS OF PARAGRAPHS 3 AND 4, PAGE 93. THE FOUR ROLLS ARE ARRANGED AS INDICATED TO GIVE THE DEEPEST TROUGHING AND HENCE THE GREATEST CARRYING CAPACITY WITH THE LEAST BENDING AND MOST UNIFORM CURVATURE OF BELTS.



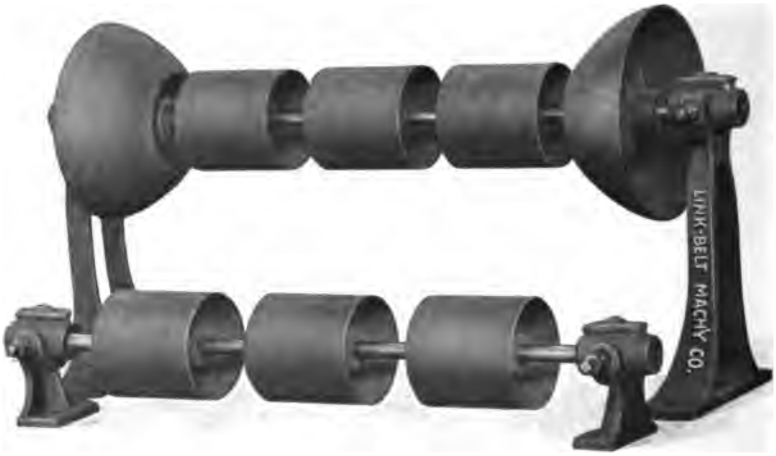
EXTRA HEAVY FOUR-ROLL TROUGHING STANDS WITH LUBRICATED BEARINGS

THESE ARE DESIGNED FOR HEAVY LOADS AND ROUGH USAGE, AS WHEN SEVERE IMPACT RESULTS FROM HEAVY LUMPS FALLING ON THE BELTS. THEY ARE ESPECIALLY ADAPTED FOR TAILINGS STACKERS OF LINK-BELT PLACER MINING DREDGES, AS SHOWN ON OPPOSITE PAGE.

Conveyor Belts

WE are prepared to furnish Conveyor Belts of highest grade, made especially for us, either of rubber, with cushioned surfaces, or of canvas, stitched or woven. Also belts of lower grade, where the duty is such that belts of highest cost are not required, and special belts to resist the action of moisture or heat.

"Dish-Pan" Concentrating Rolls



Give excellent results in the handling of grain, or other light and non-abrasive material.

This is a relatively cheap form of roll, often employed for handling heavy and gritty materials where low first cost is considered, rather than durability of conveyor belts.

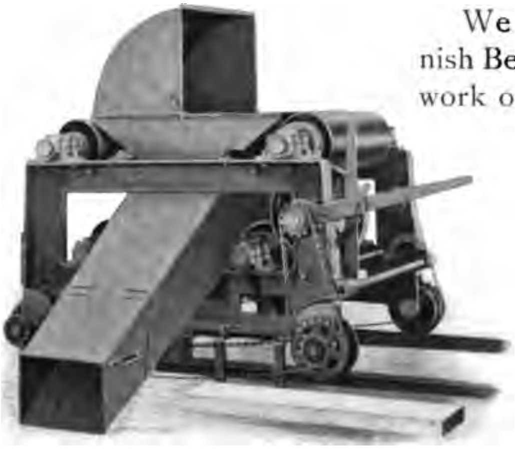
Price List of "Dish-Pan" Concentrating and Return Rolls Complete

Width of Belt...	12 in.	14 in.	16 in.	18 in.	20 in.	24 in.	28 in.	30 in.	36 in.	40 in.
Concentrating Rolls	$6 00	$6 40	$6 85	$7 00	$7 20	$8 15	$9 40	$9 50	$10 30	$11 00
Return Rolls....	4 20	4 30	4 40	4 70	4 80	5 20	6 10	6 20	6 50	7 00

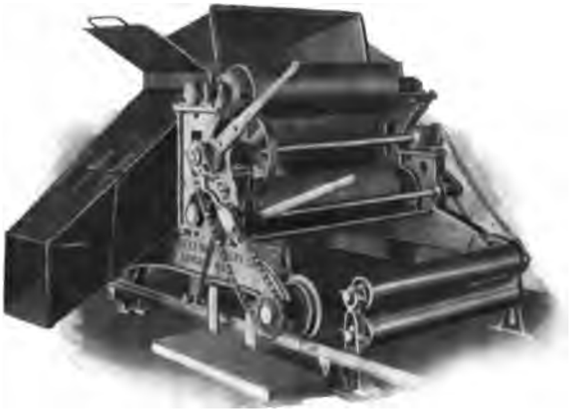
Standard Concentrating Rolls include 14-inch stands, Return Rolls 4½-inch stands, both having pivoted bearings.

Belt Trippers

We are prepared to furnish Belt Trippers to suit any work or conditions.

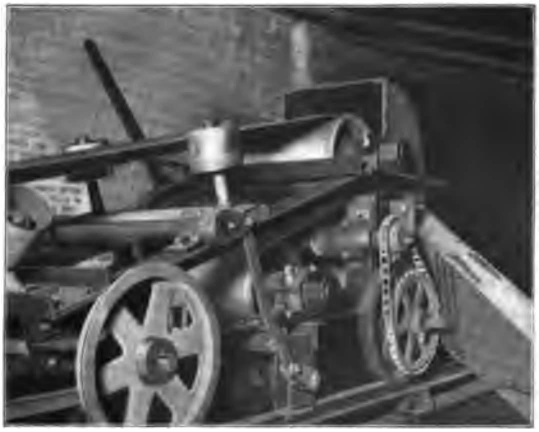


SELF-PROPELLING AND REVERSIBLE GRAIN TRIPPER



STANDARD SELF-PROPELLING GRAIN TRIPPER

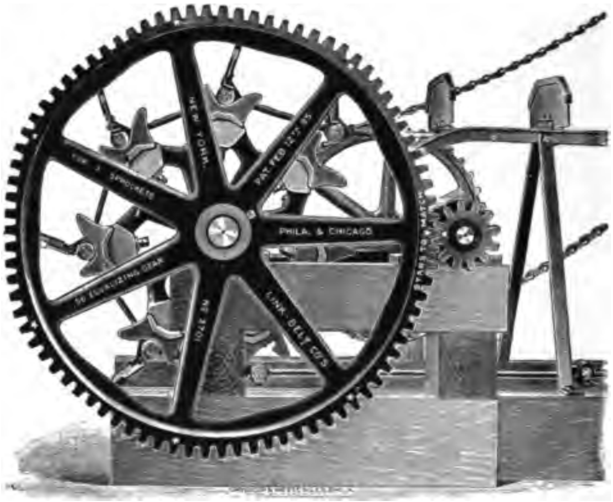
NOT REVERSIBLE.



LOW FRAME SELF-PROPELLING BELT TRIPPER

FOR SEVERE SERVICE

CUT IS FROM PHOTOGRAPH OF TRIPPER DISTRIBUTING COAL IN BOILER HOUSE OF TERMINAL RAILWAY ASSOCIATION ST LOUIS.



The "Link-Belt" Equalizing Gears

PATENTED

For Driving Link-Belt Elevators, Conveyors, and Carriers, with which Long Pitch Chains are Employed

THEY eliminate the pulsating motion imparted to chains of long pitch by driving wheels revolving at uniform speeds.

Until the invention of these gears the use of long pitch chains, notwithstanding their recognized advantages, had been restricted, owing to the severe and unnecessary strain, resulting from the pulsating motion referred to.

In the illustration a seven-tooth sprocket wheel is shown driving a chain of 18-inch links. As each link engages with the driving sprocket it is controlled by a radius 20¾ inches long, measured from the center of the sprocket wheel to the center of the hinge joint of the chain. When the wheel has made one-fourteenth of a revolution (or one-half the movement necessary to bring the next link of the chain into engagement with the sprocket), the controlling radius is reduced to 18¾ inches (measured from center of wheel to middle of chain link). This action is like that of a connecting rod, the horizontal movement varying in speed, though the wheel to which it is attached revolves uniformly. If the sprocket wheel makes ten revolutions per minute, these alternations of chain speed occur 140 times per minute, and are necessarily fatiguing and destructive to the chain, producing a violent increase of the normal strain at frequent intervals without any useful result.

The Equalizing Gear is designed to impart a pulsating motion to the driving sprocket wheel, exactly counteracting the variations in chain speed above explained. This is accomplished by making the pitch line of the spur wheel describe a series of waves, the number of elevations and depressions in which correspond to the number of sprockets on the chain wheel, and by driving the spur wheel with an eccentric pinion. The sprocket wheel and spur gear are keyed on the head shaft in proper relative positions. By the use of this gearing less power is required, and the destructive strains due to driving with circular gears are eliminated, thus permitting installations of greater length or the use of lighter chains.

List of Equalizing Gears and Pinions

No.	Diameter, Inches.	No. Teeth.	Pitch, Inches.	Face, Inches.	Note.
6780	45¾	96	1½	4	For 8 Tooth
6779	5¾	12	1½	4	Sprocket
8065	46¾	84	1¾	6	For 6 Tooth
8066	8	14	1¾	6	Sprocket
6279	61	96	2	6	For 8 Tooth
8516	7¾	12	2	6½	Sprocket
10516	56	84	2 1/16	6	For 7 Tooth
10515	8	12	2 1/16	6	Sprocket
9662	63¾	80	2½	7	For 10 Tooth
9661	12¾	16	2½	7¾	Sprocket
6150	84	96	2¾	8	For 8 Tooth
6151	10½	12	2¾	8	Sprocket
5761	68¾	72	3	9	For 8 Tooth
5762	17¼	18	3	9	Sprocket

Sole Plates

We are prepared to furnish a full line of Sole Plates for pillow blocks, by which above gears and pinions are mounted on the same base, and a uniform distance between centers is preserved.

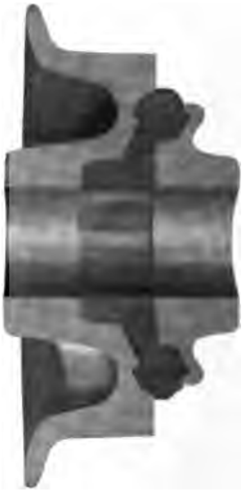
Prices quoted on application.

The Link-Belt "Absorbent" Self-Oiling Roller

Patented

NOTHING is so destructive to a wheeled conveyor of any type as a lack of proper lubrication in the rolling parts. Not only does it cause the journals to wear rapidly, but it increases the strain in the chain, and quickly destroys the articulations. The number of small wheels employed is ordinarily so great that the process of oiling by hand is slow and laborious to such an extent that, after exhausting the original supply of lubricant in the wick or oil chamber of the ordinary, so-called, "self-oiling" roller, the bearing usually runs dry for lack of renewal.

The "Absorbent" Roller insures a proper and uniform lubrication, without delays to machinery, and practically without labor or attention.



The wheel is chambered and packed with absorbent felt, as shown by cuts. Oil from a reservoir automatically applied to the exposed surface of the felt, as the roller passes a given point, is immediately absorbed and fed to the journal.

A proper and uniform lubrication is thus assured without delays to machinery, and practically without labor or attention.

The "Link-Belt" "Enclosed Oiling" Roller

WHILE the "Absorbent Roller" is adapted to all ordinary conditions of service, in some cases it is not suitable, as when operation in water or exposure to the action of certain acids or alkalis is required. For such use we offer the "Enclosed Oiling" Roller as here shown.

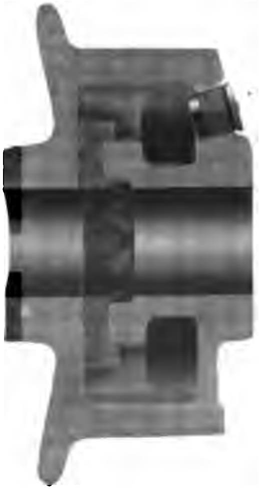
The interior of this roller is cored out, forming a large chamber in which the oil is carried, and from which it is fed to the bearing through an opening packed with an absorbent felt ring. Ribs radiating from the center, as shown, act as lifting blades, and keep the felt constantly saturated until the supply of oil is exhausted.

The oil chamber is charged through a screw plug, as also indicated. This has an orifice in center, which is closed by a spring cap from the inside. Pressure from the point of a syringe causes this cap to yield, and when the pressure is removed it springs back into position, effectually preventing the oil from escaping even when the chamber is full, and preventing foreign matter of any kind from penetrating to the interior.

When lubricating oil of proper consistency is used, a single charge will insure uniform lubrication for many weeks of daily operation.

Link-Belt Conveyors or Carriers provided with "Absorbent" or "Enclosed Oiling" Rollers consume less power and labor, and last longer than when any other method of oiling is employed.

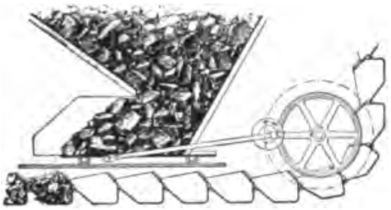
Prices quoted on application.



The "Link-Belt" Automatic Reciprocating Feeder

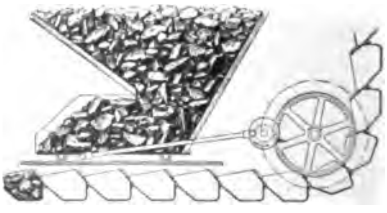
Patented

THIS machine is placed under a track hopper, which receives the entire contents from drop-bottom or side-dump cars, and delivers coal to carriers or conveyors at the proper rate without supervision. The rate of delivery corresponds to the capacity of the carrier, and is independent of the size of discharge opening in the hopper, which opening can therefore be made large enough to insure the free movement of coal containing lumps of any size. It regulates the flow of coal containing lumps 30 inches or more in diameter as readily as it does that of buckwheat coal, making it impossible to clog the hopper or overload the carrier.

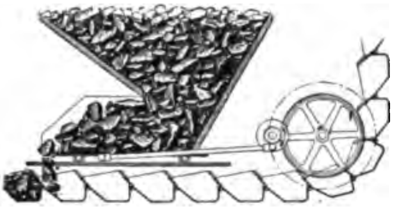

POSITION "A"

In its simplest form the loader consists of a heavy steel plate mounted on rollers and having a reciprocating movement, actuated by a crank mechanism from the carrier.

The accompanying illustrations explain its operation. View "A" shows the innermost position of the feeder, where it will be seen the plate extends a trifle beyond the line of repose of the coal and effectually prevents it from discharging. As the crank-shaft revolves, the plate moves forward into position "B," the coal lying on the plate moves forward with it, while that in the hopper crowds down to fill the space made vacant. With the completion of the crank revolution, the plate is pulled back into position "A," but the coal it supports is prevented from moving back by the mass behind. A portion is therefore discharged into the carrier, as shown by position "C."


POSITION "B"

The amount of coal so delivered depends upon the distance the plate moves. This can easily be varied by changing the throw of the crank, and the delivery regulated to any quantity desired. The number of reciprocations correspond to the number of buckets or flights, and delivery being made to each separately, a uniform load is assured.

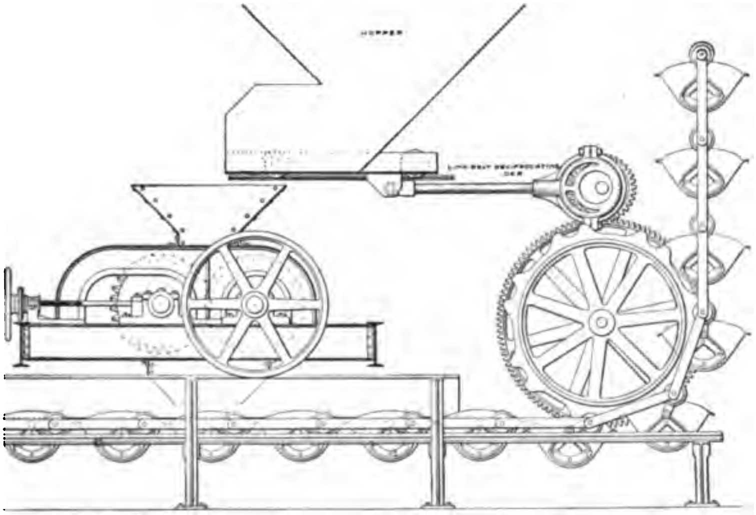


POSITION "C"

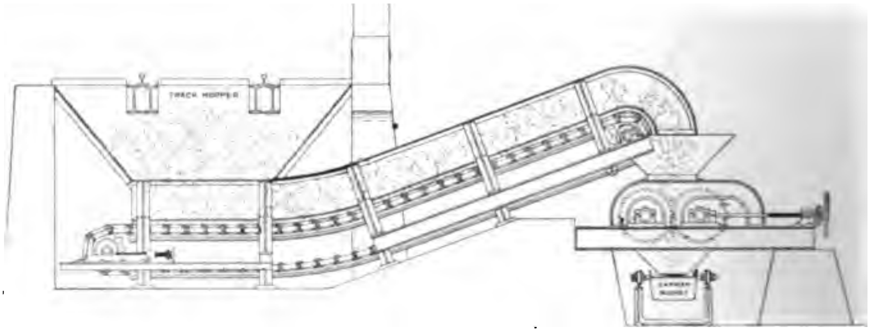
The hopper is so constructed as to relieve the feeding plate from the weight of contents, no coal being supported by this plate until after it has passed through the opening, or gate, in hopper.

The reciprocating feeder is automatic in its action, and not only dispenses with the labor of a man, but absolutely eliminates all danger of break-downs due to overloading the carrier.

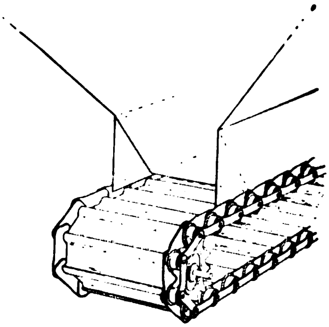
It is also employed for mixing anthracite and bituminous coal with great success.



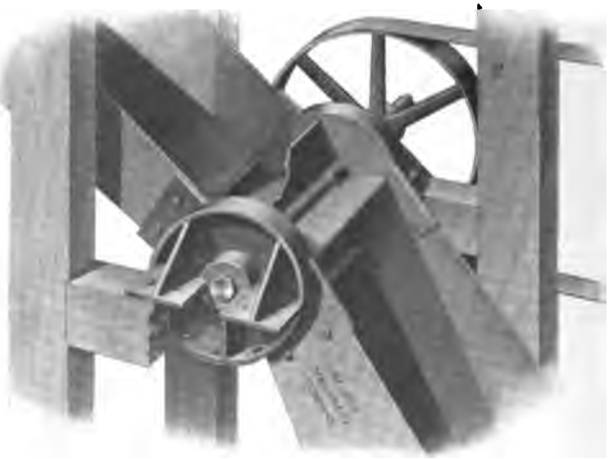
THE LINK-BELT" RECIPROCATING FEEDER IS ALSO EMPLOYED FOR DELIVERING FROM HOPPER TO BREAKER, AS SHOWN. IN SUCH CASES IT CAN BE DRIVEN DIRECTLY FROM THE BREAKER IF DESIRED, A SPECIAL MECHANISM BEING EMPLOYED FOR THAT PURPOSE.



Continuous Apron Feeder

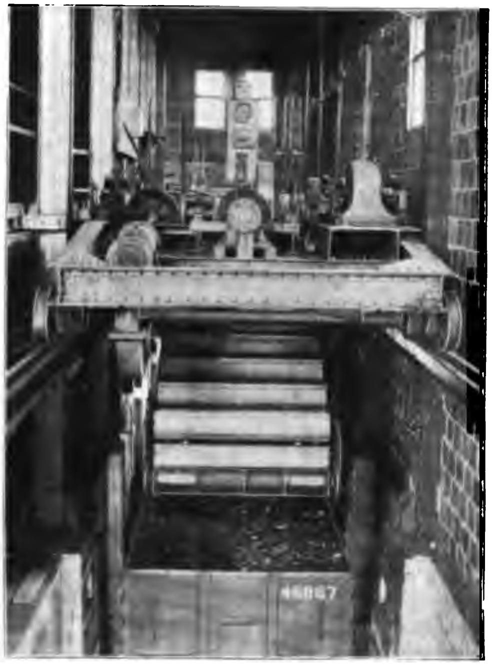


USED when the distance from track hopper to carrier is so great that the reciprocating feeder is not practicable, and when a steady, constant flow of material is desired, as in making delivery from a hopper to a crusher.



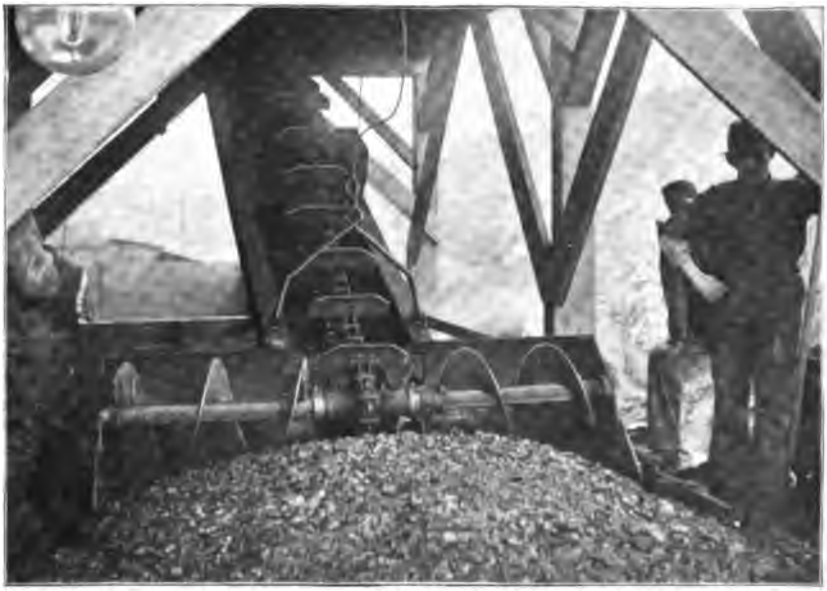
"LINK-BELT" AUTOMATIC ROTARY FEEDER

Unloading Small Coal from Gondola Cars



BUCKET TYPE OF CAR UNLOADER

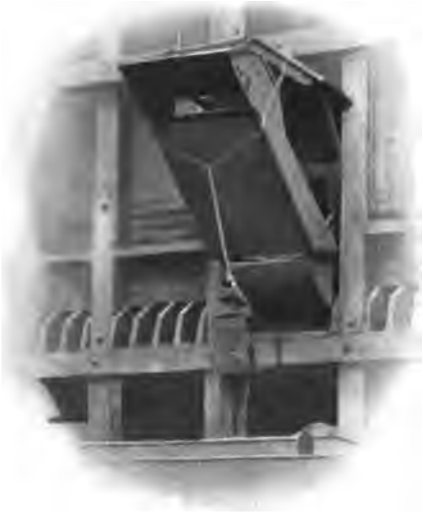
TWO standard forms of Link-Belt Car Unloaders are here shown, either of which can be modified in many ways to suit conditions. The cut herewith shows a loader of the Continuous Bucket type, attached to and operated from a self-propelling car, which moves to any desired point on an overhead track. Installed for the Metropolitan Elevated Railway Company, Chicago. Stationary machines of this type are more extensively used, and are less costly in construction. Cut below shows an unloader of the conveyor type in operation for the Spring Valley Coal Co., Dalzell, Ills. Both forms are widely employed with great economy, both in time and labor.



CONVEYOR TYPE OF CAR UNLOADER

The "Link-Belt" Under-cut Gate and Hooded Chute

Patented February 2, 1904

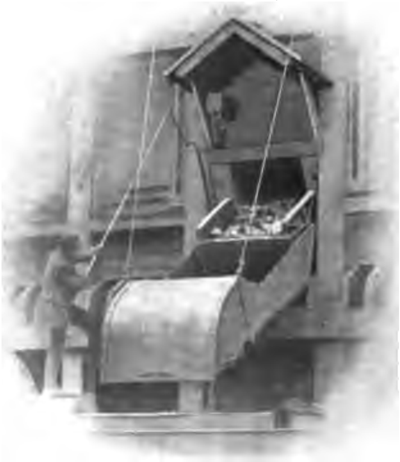


OPERATOR IN ACT OF LOWERING CHUTE INTO POSITION.

TO insure a free and continuous movement of lump material from a bin, the area of discharge opening should be from three to four times that of the largest lumps. Otherwise these will tend to arch and choke the passageway.

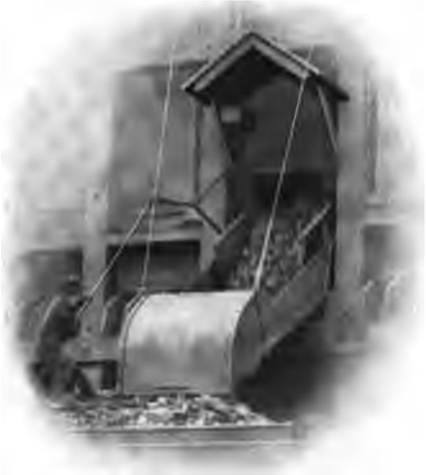
It follows that if the lumps are very large, as in mine run coal, an opening properly proportioned would permit the material to flow in such volume that unless controlled by a gate, which can be instantly and effectually closed, the overflowing of cars or locomotive tenders will often occur. Any gate which cuts into the stream of material from above is suitable only for small lumps, as a large passing lump if caught by the gate will effectually prevent it from closing until it is again raised and the lump released.

The "Link-Belt" Under-cut Gate operates on the principle that even a slight obstruction in the bottom of an incline chute will stop the flow of lump material.



CHUTE LOWERED—OPERATOR OPENING GATE.

It has a curved front and opens by a rotary movement downward. It closes by a reverse movement, cutting into the stream of coal from below in such a manner that lumps cannot retard its action.



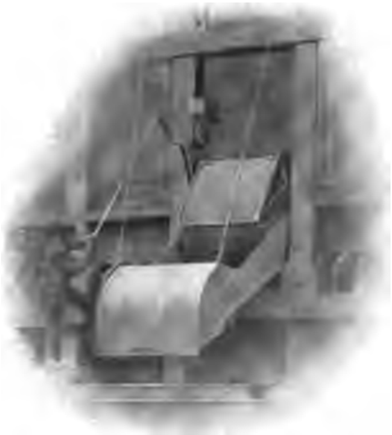
GATE OPEN AND COAL FLOWING—OPERATOR CLOSING GATE.

It is always under perfect control, and is easily operated by one man standing on the tender.

If the gate is located in an outside or exposed position, it may be equipped with a hinged steel cover, as shown in cut below. This permits the coal to flow freely, but protects that portion lying immediately inside the gate from rain or snow, and prevents it from freezing up in winter.

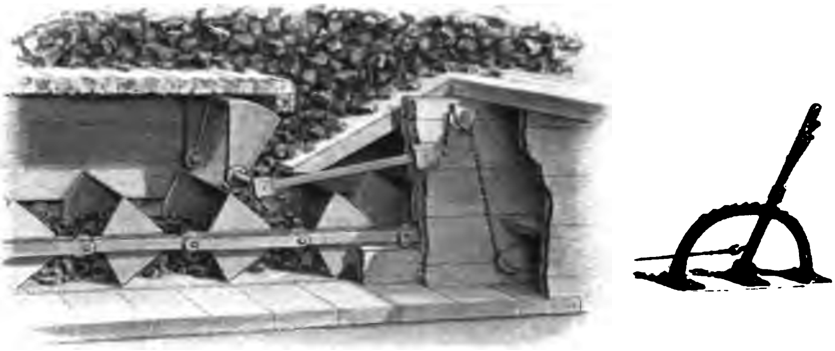
The chute itself is also accurately counterbalanced, and possesses a highly important feature in the hood, which insures an absolutly vertical discharge regardless of the volume of material or speed. at which it travels. It thus concentrates the delivery and prevents overshooting even the lowest car or tender.

They are employed for coaling locomotives by the most important and progressive railway companies throughout the country. In actual work, six tons of coal are easily delivered to a locomotive tender in thirty seconds.



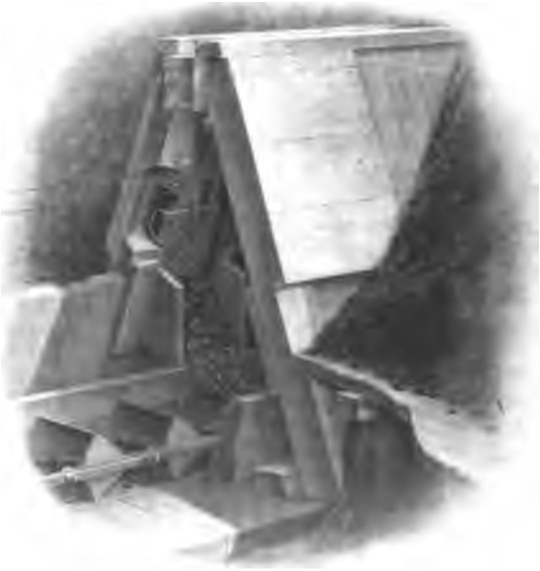
SHOWING COVERED GATE REFERRED TO ABOVE.

This gate is also admirably adapted to ore and rock pockets, and is successfully used with both. It can be employed with any type of elevated pocket.



LINK-BELT INLET GATE "WITTY" TYPE

FOR FEEDING ANTHRACITE COAL INTO LOWER RUN OF CONVEYOR WHEN BURIED UNDER COAL.



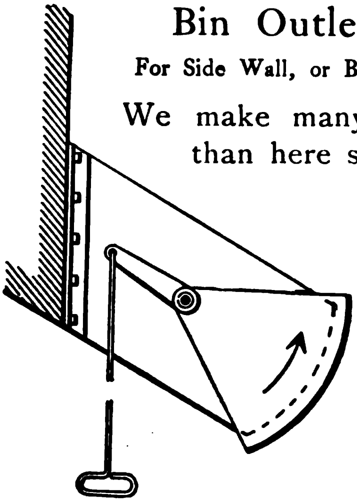
LINK-BELT TUNNEL INLET GATE

FOR ADMITTING COAL TO CONVEYOR SITUATED IN A TUNNEL UNDER COAL PILE.

Bin Outlet Gates

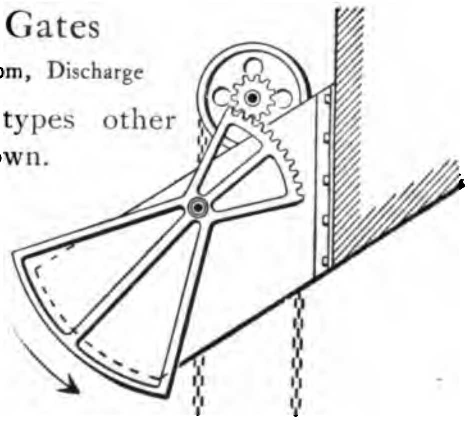
For Side Wall, or Bottom, Discharge

We make many types other than here shown.



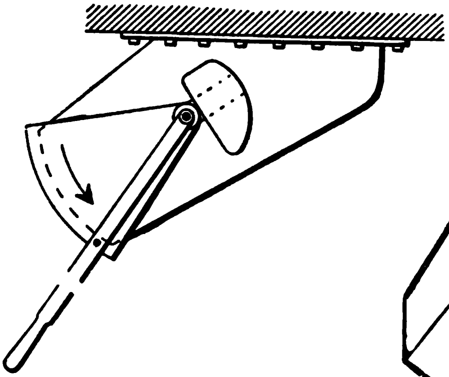
STYLE A

SIDE WALL UPPER-CUT GATE.



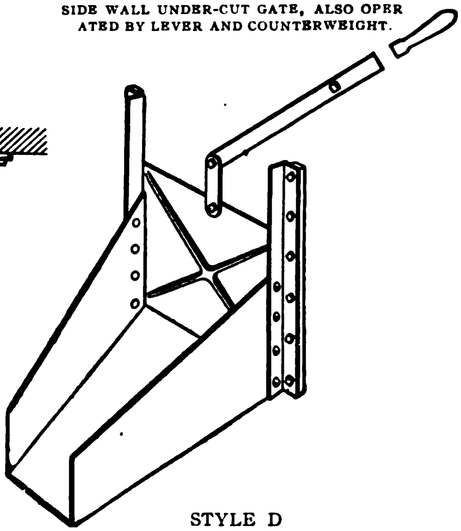
STYLE B

SIDE WALL UNDER-CUT GATE, ALSO OPERATED BY LEVER AND COUNTERWEIGHT.



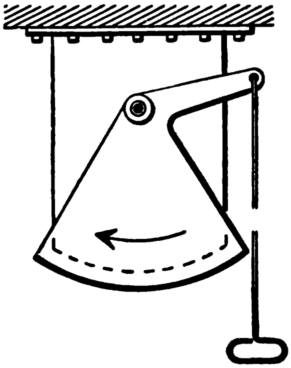
STYLE C

BIN BOTTOM UNDER-CUT GATE



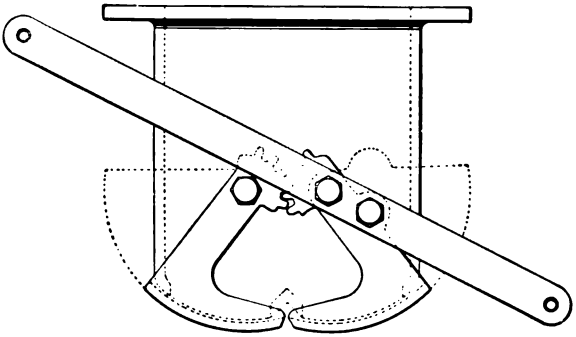
STYLE D

SIDE WALL SLIDE GATE, ALSO MADE TO OPERATE WITH RACK AND PINION IF DESIRED.



STYLE E

BIN BOTTOM CROSS-CUT GATE.

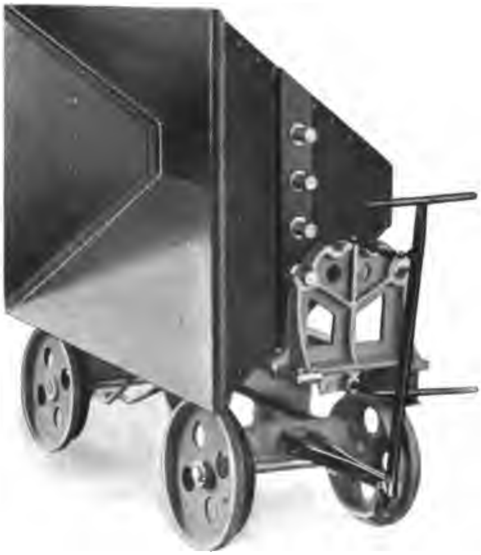


STYLE F

BIN BOTTOM DUPLEX GATE.

Link-Belt Steel Cars

Designed and Built to Suit Any Work or Conditions

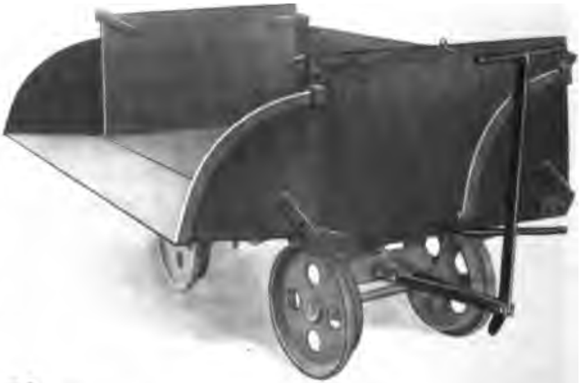


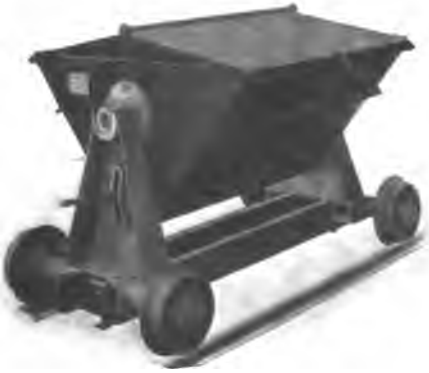
Link-Belt Side-Dump Coal and Ashes Cars

Made in a variety of forms and sizes, and with rigid or pivoted front axles.

Link-Belt Side-Drop Charging Cars

Of the type shown are made in any capacity, and can be modified to suit conditions.

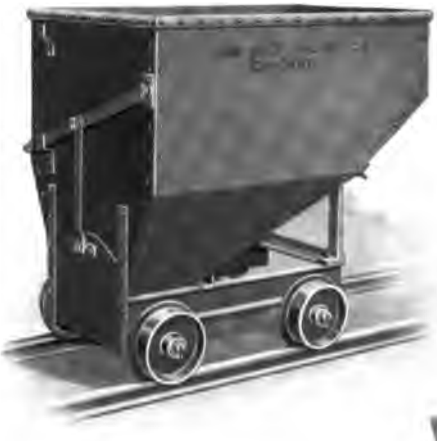




Link-Belt Side-Dump Mineral Car

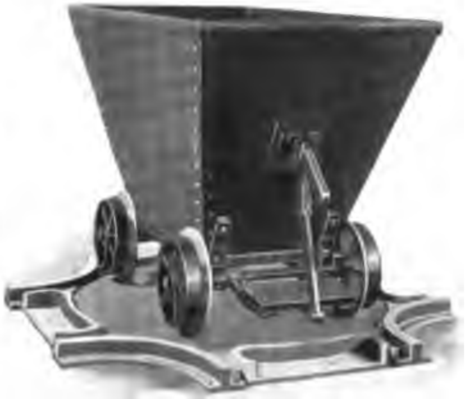
With automatic locking device and with or without steel cover.

Link-Belt Steel Cars—continued



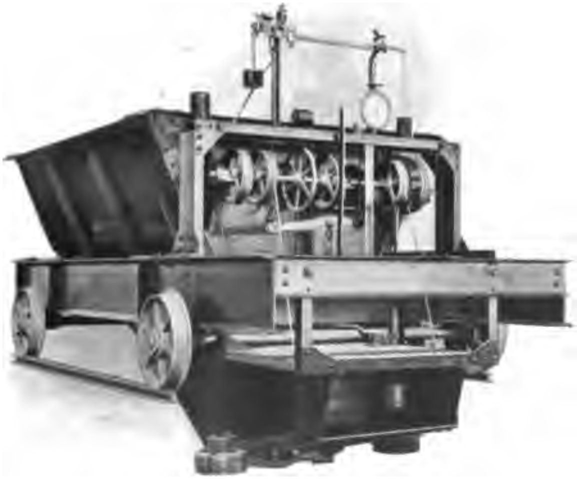
Link-Belt End-Discharging Cars

Are made as shown, or to discharge at both ends. Cars of this type discharging on one or both sides are also built to suit conditions.



Link-Belt Bottom-Discharging Cars

Are made in several capacities, with or without automatic tripping device.

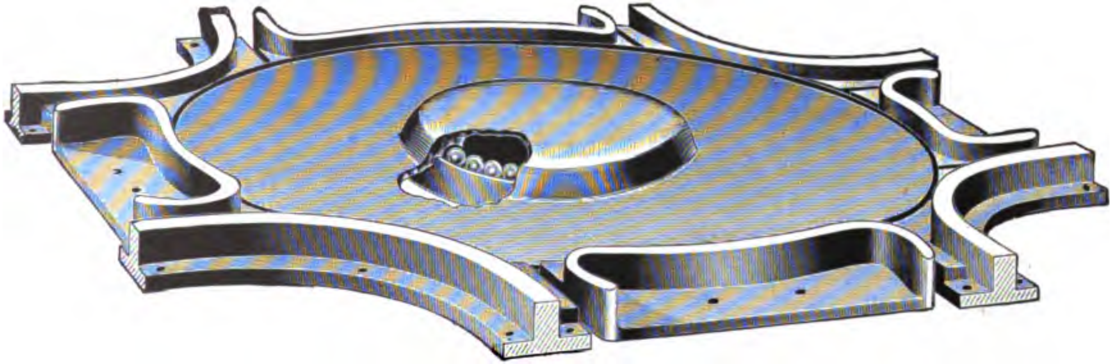


Special Steel Cars

Designed and built to suit conditions. Cut shows one of two 4-ton scale cars built for the Western Fuel Co., Nanaimo, B. C.

The "Link-Belt" Turn-Table

CONSTRUCTION is such that load is balanced—even when load is not central—thus relieving corner guards of weight and bringing entire load upon the balls. This insures great ease of operation, as when heavily loaded it can be readily swung around by one man.



SIMPLE, DURABLE, MECHANICAL, ECONOMICAL

No pit or foundation is required, the base of the table being flush with bottom of rail.

PATTERN SIZES

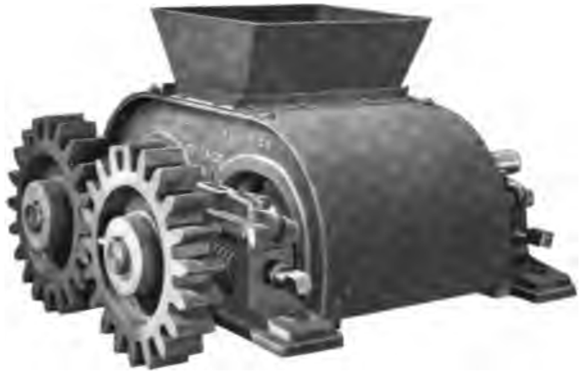
Diameter 32 in.,	track gauge 18 in.	$30.00
" 34 "	" " 20 "	35.00
" 38 "	" " 20 "	45.00
" 43 "	" " 22¼ in.	55.00

PATTERN SIZES

Diameter 48 in.,	track gauge 24 in.	$65.00
" 60 "	" " 30 "	100.00
" 84 "	" " 47 9/16 in.	175.00
" 120 "	" " 30 in.	360.00

For 48-inch turn-table we can also furnish track gauges 24⅝ in., 26¼ in., or 29 in.

Special sizes made to order.



"Link-Belt" Coal Breaker

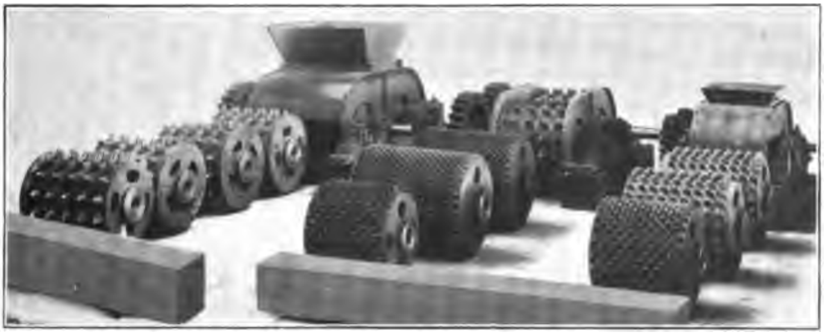
THE rolls are made of semi-steel or Manganese steel, having solid chilled teeth, or inserted steel teeth when required. Unless otherwise specified, semi-steel rolls with solid chilled teeth are furnished.

We have patterns for the following sizes

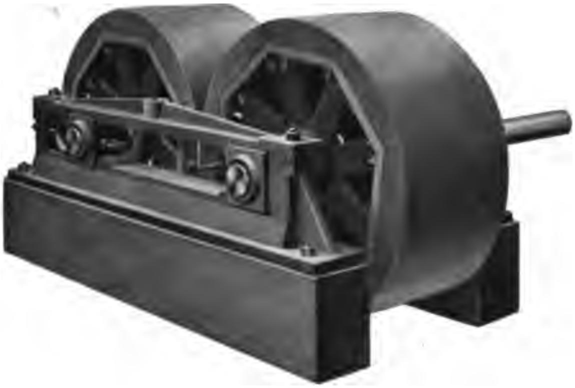
Capacities ranging from 5 tons to 200 tons per hour

The exact horse-power and capacity depend upon size to which coal is broken.

Size of Rolls.		Shipping Weight.	Approximate Capacity Tons per Hour.	Speed, Revolutions per Minute.	Approximate Horse-power Required.	Maximum Size of Piece that will Enter, Inches.
Diameter, Inches.	Length, Inches.					
15	20	3,500		225	10	10 x 15
18	24	5,500		200	12	10 x 20
24	24	7,000		160	15	14 x 20
24	30	7,800		160	20	14 x 24
28	30	10,000		125	25	16 x 24
28	36	12,000		125	35	16 x 30
30	36	13,000		100	40	18 x 30
36	48	21,000		85	60	18 x 36



PHOTOGRAPH SHOWING A VARIETY OF STANDARD BREAKER ROLLS.

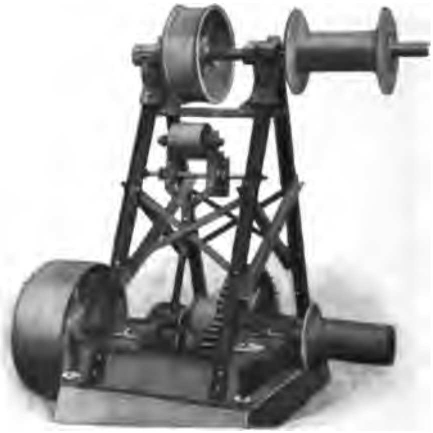


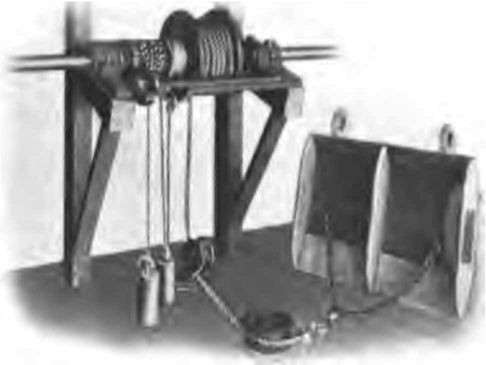
"Link-Belt" Disintegrator

Used for fine crushing of coal. Made in two sizes: 36-inch diameter, 20-inch face. 48-inch diameter, 24-inch face.

Safety Car Puller

Steel frame on cast iron bed. Extra heavy, with capacity of from 10 to 15 loaded cars.

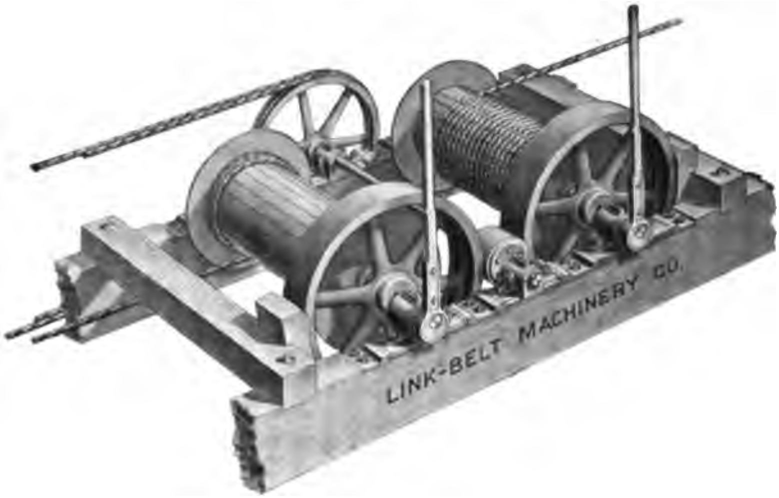




The Clark Power Grain Shovel

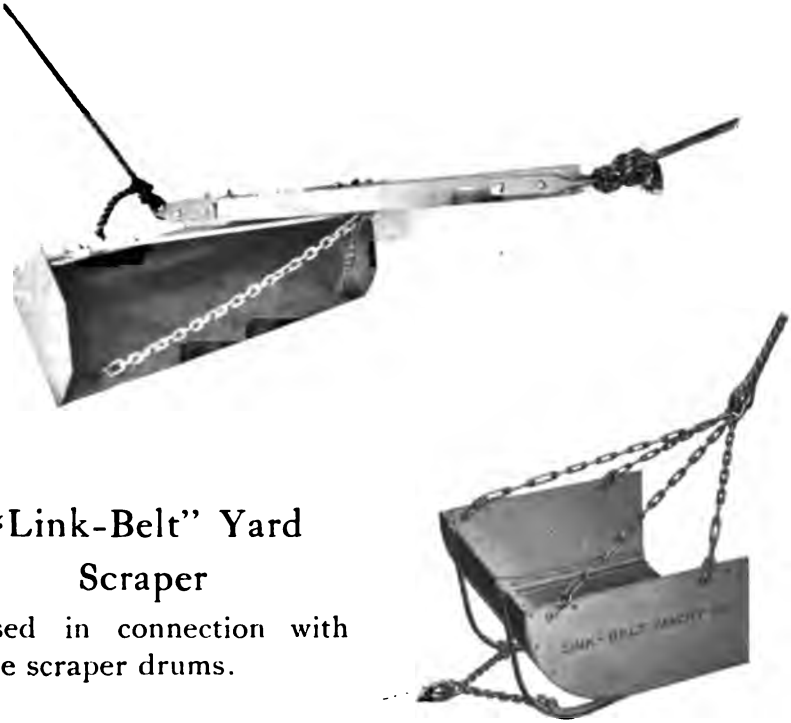
Standard and Extra Heavy Patterns of Approved Design

Scraper drums of this type, with steel scrapers, are also extensively employed for discharging small coal from box cars, and for scraping coal in yards to conveyors or elevators.


LINK-BELT MACHINERY CO.

"Link-Belt" Power Scraper Drums

For scraping coal in coal yards to lines of conveyors, and scraping coal in vessels to the hatches.


LINK-BELT MACHY CO.

"Link-Belt" Yard Scraper

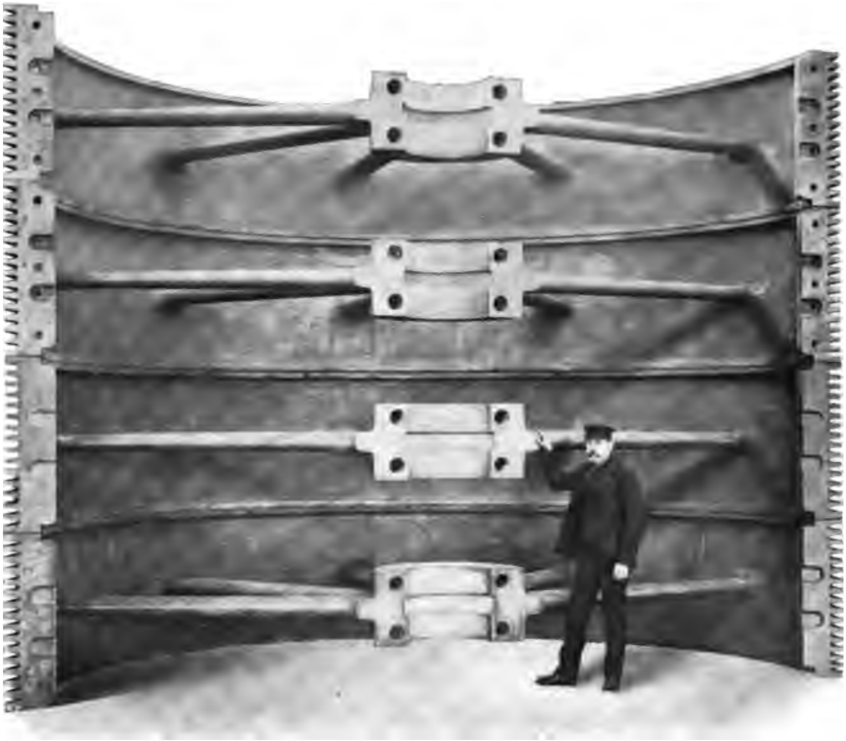
Used in connection with above scraper drums.

Steel Casings for Elevators and Conveyors, Steel Bins, Spouts and Structural Work

We design and build work of this character or execute work from designs furnished.

Our structural iron and steel shop covers an area of 125 feet by 336 feet, and is equipped with the most modern appliances of all kinds for executing work of any magnitude in a rapid and economical manner.

DUST TIGHT STEEL CASINGS
FOR SPIRAL CONVEYOR



SHOWING ONE-HALF OF AN 18 FOOT DIAMETER 60 GROOVE SPLIT SHEAVE FOR 2-INCH ROPE. THE COMPLETE SHEAVE IS COMPOSED OF 8 SEMI-CIRCULAR SECTIONS, OF 15 GROOVES. CUT IS FROM A PHOTOGRAPH OF ROUGH CASTINGS UPON WHICH NO MACHINE WORK HAD BEEN DONE. NOTE SMOOTHNESS AND UNIFORMITY OF SECTIONS.

Iron Castings

WE are prepared to furnish castings of the highest quality, made either of gray iron, or what is commonly termed semi-steel, and castings chilled by a special process which produces an exceedingly hard and deep wearing surface.

Our foundry is equipped with every modern appliance including molding machines, traveling cranes, etc., necessary for the rapid and economical handling of heavy work, *of which we make a specialty*.

Our castings are characterized by uniformity in quality, smoothness, and freedom from the many defects and flaws common to cheap labor or poor facilities.

We will execute work from patterns furnished, or will prepare working drawings and make patterns if desired.

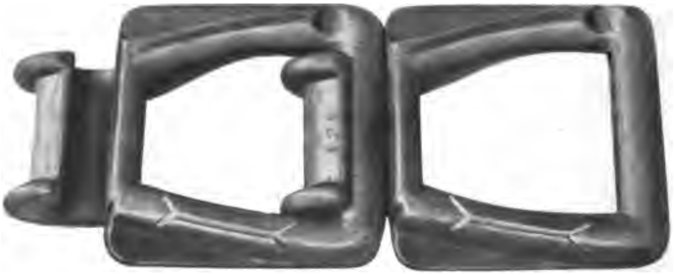
WE ARE THE ORIGINAL DESIGNERS AND MANUFACTURERS

OF

DETACHABLE CHAIN OR LINK-BELTING

ALL the forms of plain and attachment links were first produced by us. We are familiar with every detail of manufacture and use, and possess all the master patterns and gauges. Our chains are always reliable.

THEY ARE THE STANDARD



E.M.CO.
TRADE MARK

TRADE-MARK, No. 30,425,
July 20, 1897

TO distinguish the "Original" Ewart Detachable Link Belting from the various imitations on the market, we now cast every link with our special mark on the side-bar, as illustrated above.

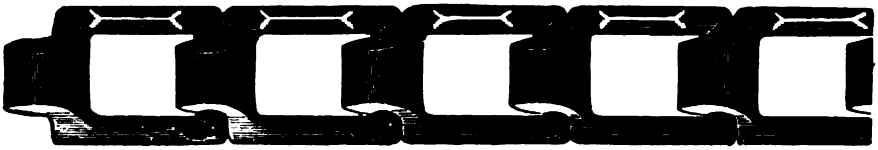
Ewart Detachable Link-Belting

Approximate Horse-Power

THE following table gives the approximate horse-power transmitted by the different chains at 100-1000 feet per minute, under average conditions. The estimates are conservatively made. Where resistance is uniform, and other conditions are favorable, it would be quite safe to figure on higher results. If, however, the chain be subject to shocks, or there are other unfavorable conditions, proper allowance must be made.

Size.	SPEED IN FEET PER MINUTE.									
	100	200	300	400	500	600	700	800	900	1000
25	.20	.38	.54	.66	.76	.82	.82	.76	.66	.40
32	.35	.67	.95	1.16	1.33	1.44	1.44	1.33	1.16	.70
33	.40	.76	1.08	1.32	1.52	1.64	1.64	1.52	1.32	.80
34	.45	.85	1.22	1.48	1.72	1.82	1.82	1.72	1.48	.90
35	.45	.85	1.22	1.48	1.72	1.82	1.82	1.72	1.48	.90
42	.50	.95	1.35	1.65	1.90	2.05	2.05	1.90	1.65	1.00
45	.55	1.04	1.48	1.82	2.10	2.25	2.25	2.10	1.82	1.10
51	.50	.95	1.35	1.65	1.90	2.05	2.05	1.90	1.65	1.00
52	.80	1.52	2.15	2.65	3.05	3.28	3.28	3.05	2.65	1.60
55	.75	1.43	2.03	2.48	2.85	3.08	3.08			
57	1.00	1.90	2.70	3.30	3.80	4.10	4.10			
62	1.00	1.90	2.70	3.30	3.80	4.10	4.10			
66	1.20	2.28	3.25	3.95	4.55	4.90	4.90			
67	1.30	2.47	3.50	4.30	4.95	5.35	5.35			
75	1.40	2.66	3.78	4.63	5.33	5.75				
77	1.50	2.85	4.05	4.95	5.70	6.15				
78	1.75	3.33	4.72	5.80	6.65	7.18				
88	2.00	3.80	5.40	6.60	7.60	8.20				
103	3.50	6.65	9.45	11.58	13.30					
114	4.00	7.60	10.80	13.20	15.20					
124	4.50	8.56	12.20	14.90						

Original Ewart Detachable Link-Belting



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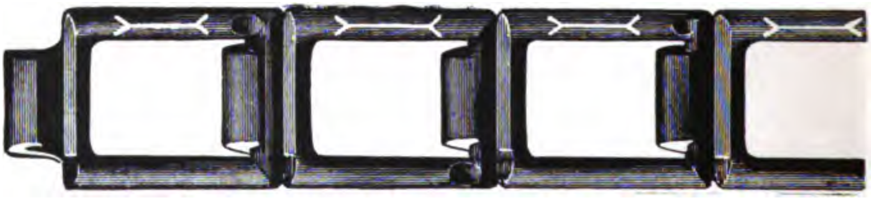

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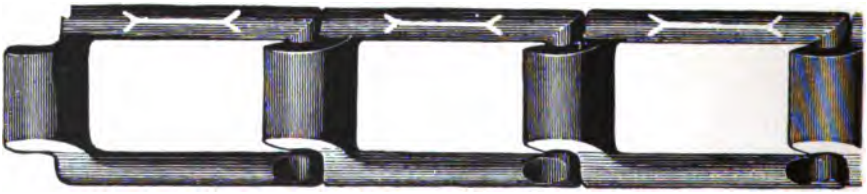

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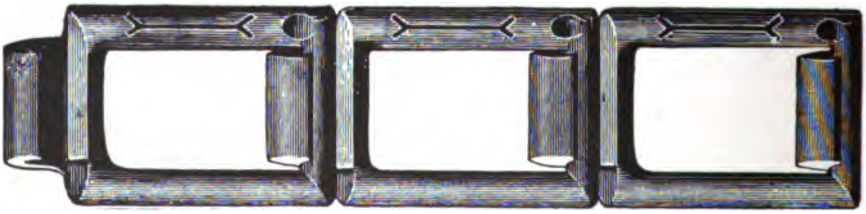

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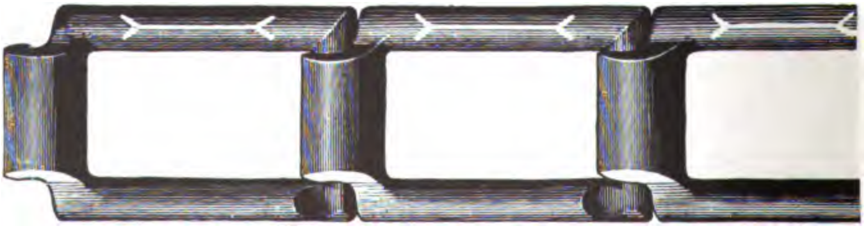
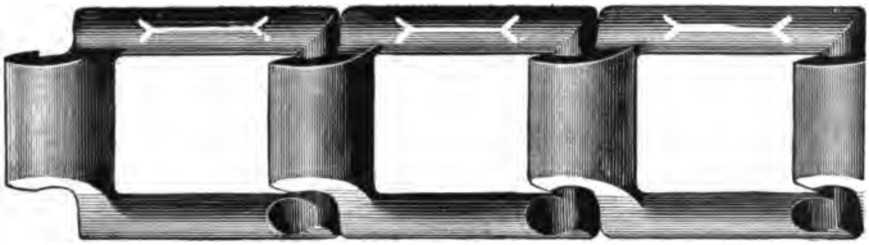


No. 35

For prices and list of attachments for each chain, see pages 136 and 137.

Original Ewart Detachable Link-Belting—continued



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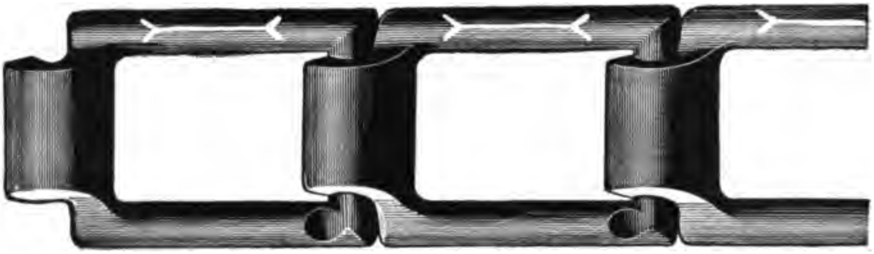

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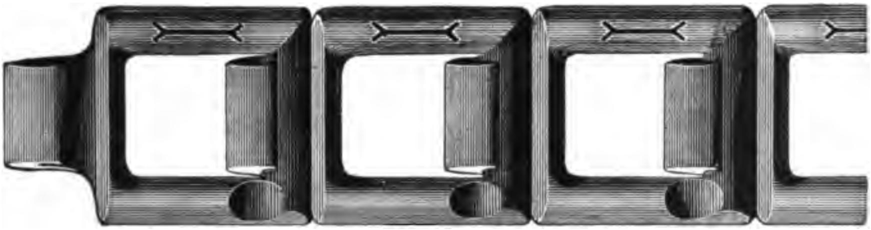

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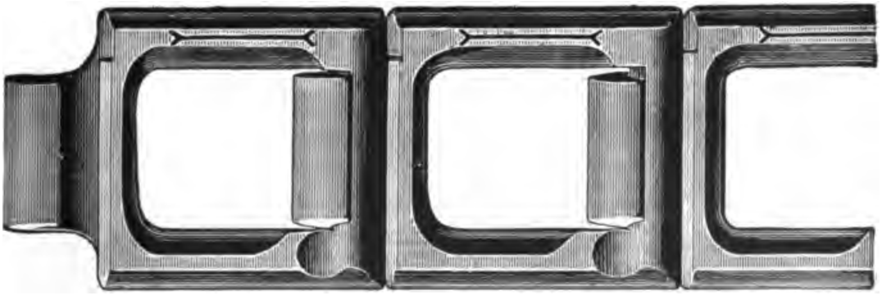
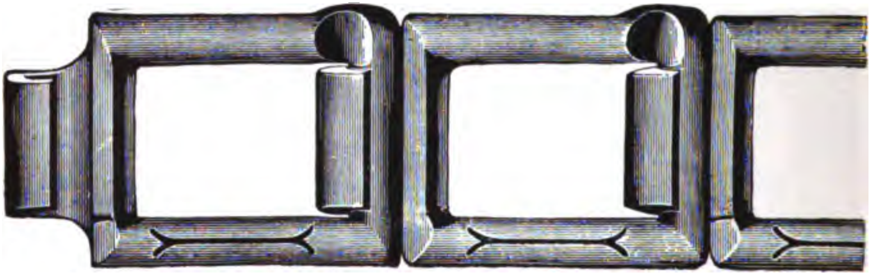


No. 52

For prices and list of attachments for each chain, see pages 136 and 137.

Original Ewart Detachable Link-Belting—continued



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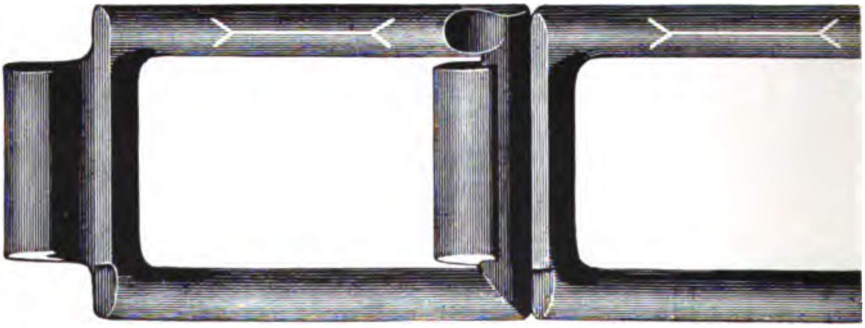

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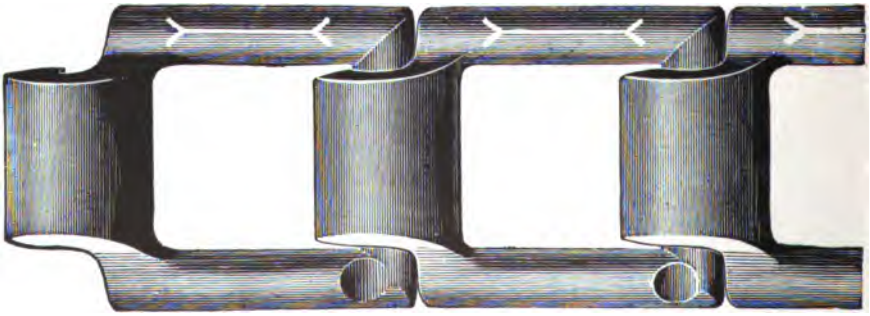
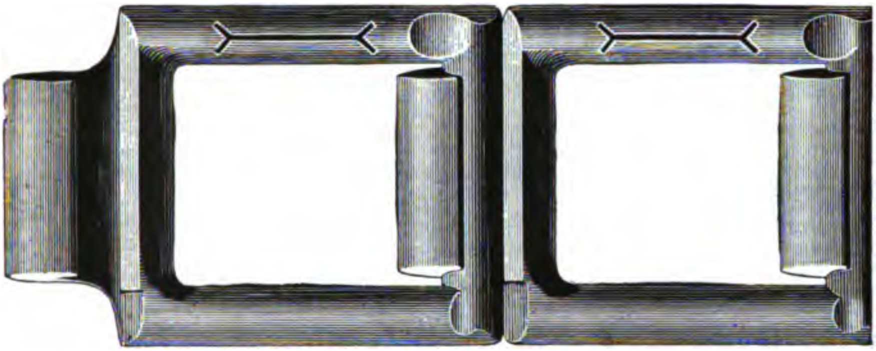


No. 62

For prices and list of attachments for each chain, see pages 136 and 137.

Original Ewart Detachable Link-Belting—continued



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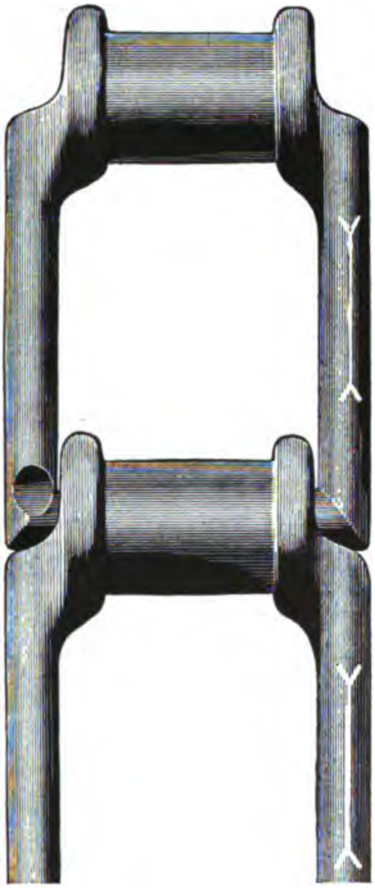

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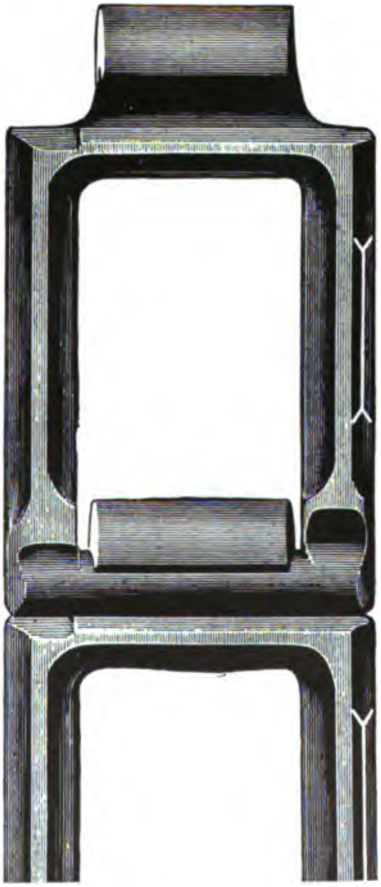
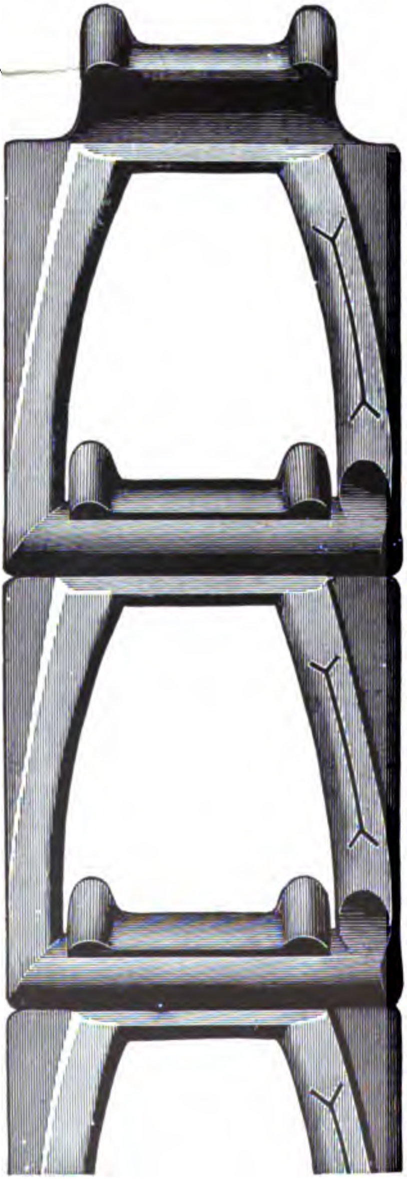


No. 75

For prices and list of attachments for each chain, see pages 136 and 137.

Original Ewart Detachable Link-Belting—continued



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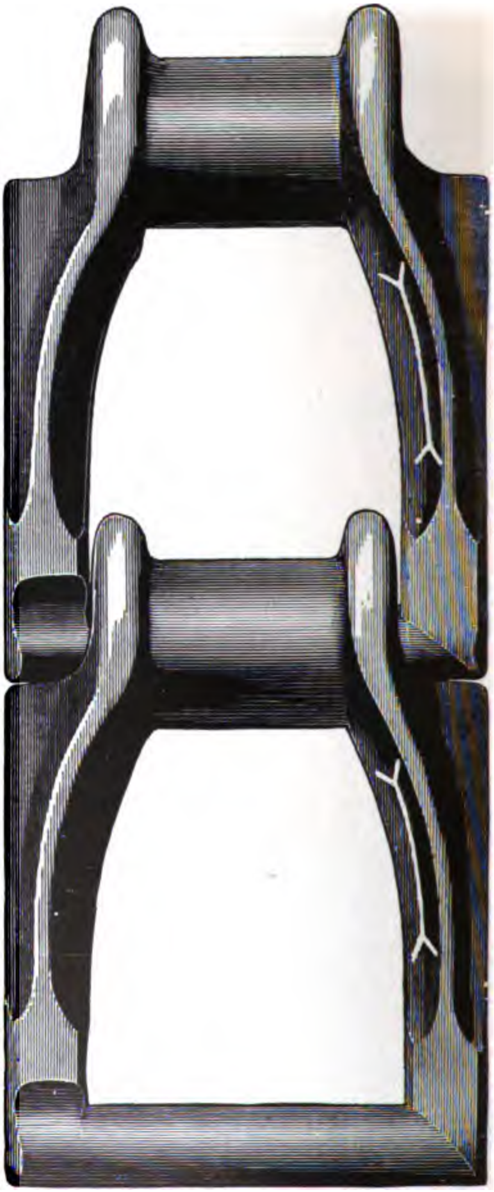
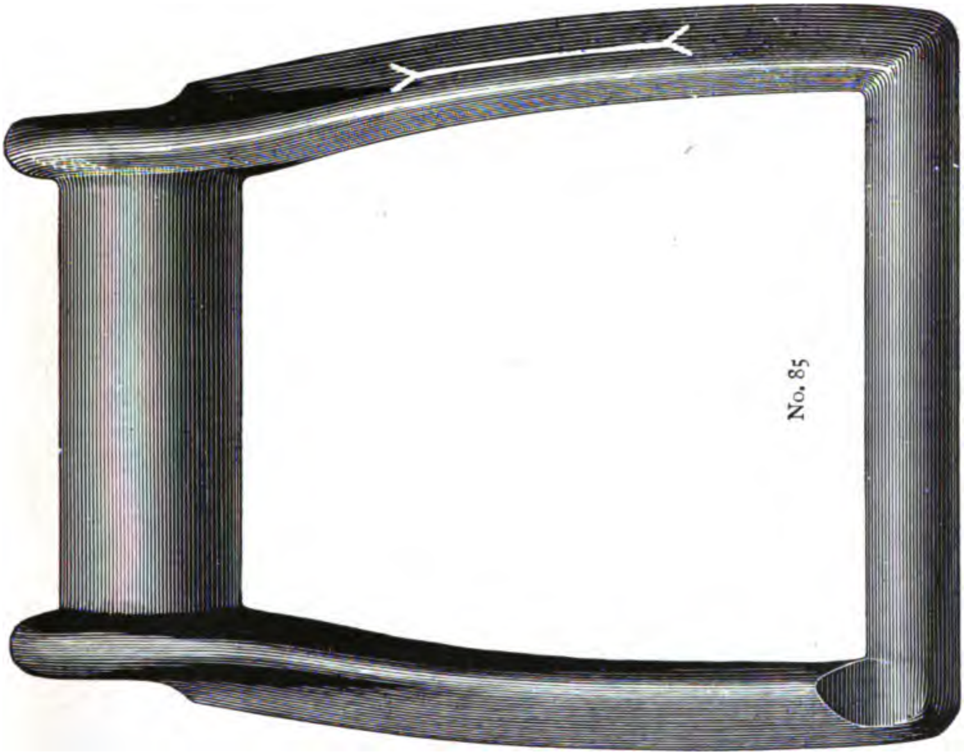
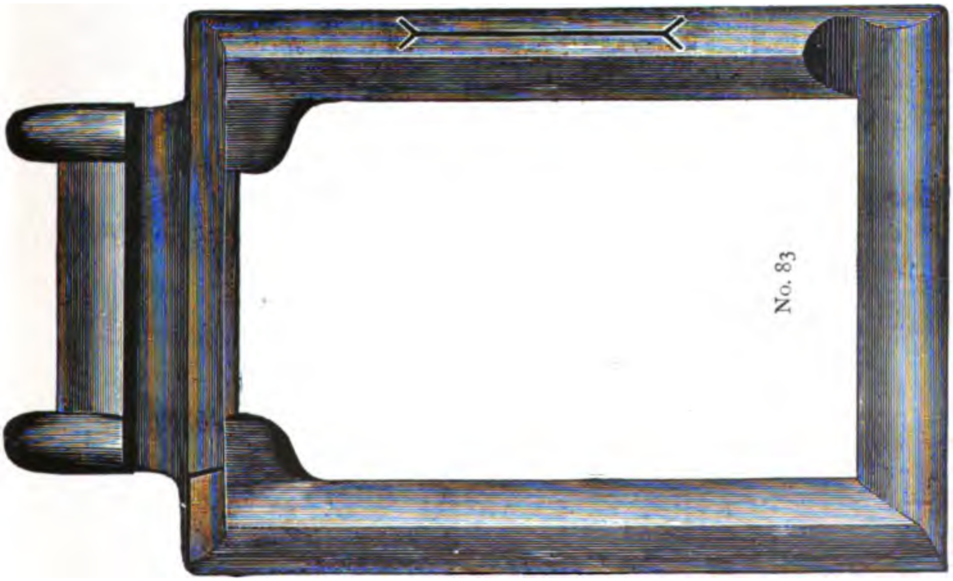


No. 78

For prices and list of attachments for each chain, see pages 136 and 137.

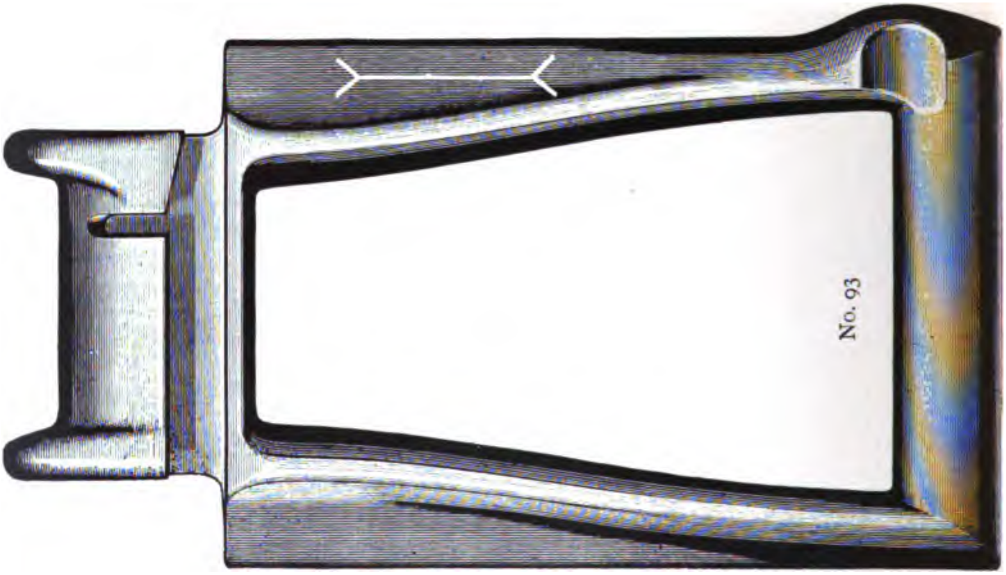
Original Ewart Detachable Link-Belting—continued

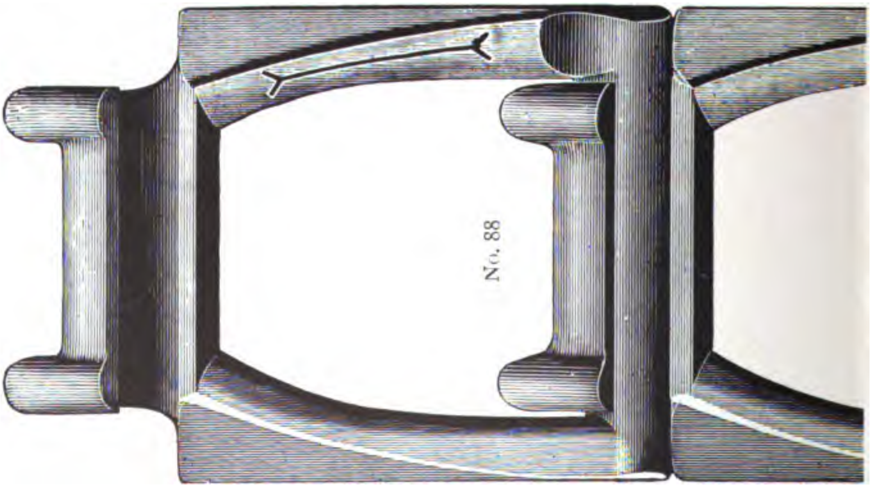




For prices and list of attachments for each chain, see pages 136 and 137.

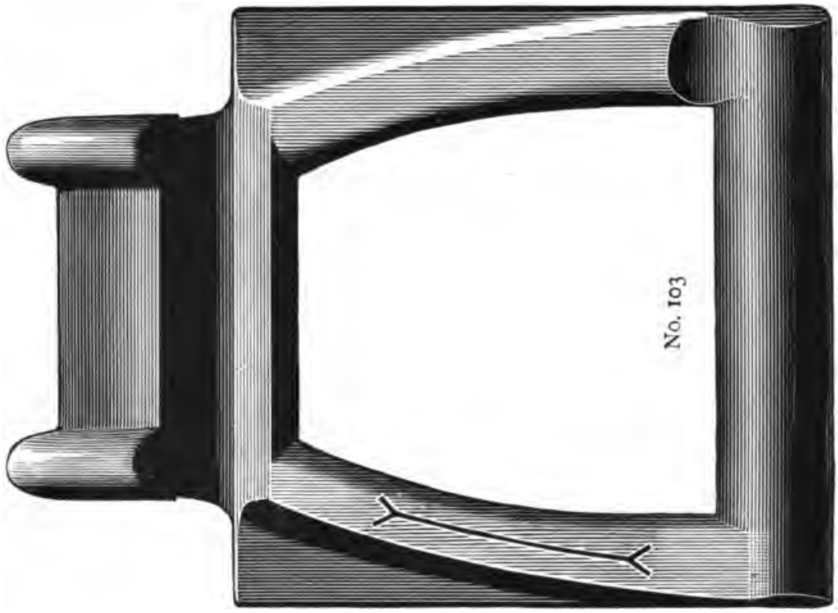
Original Ewart Detachable Link-Belting—continued





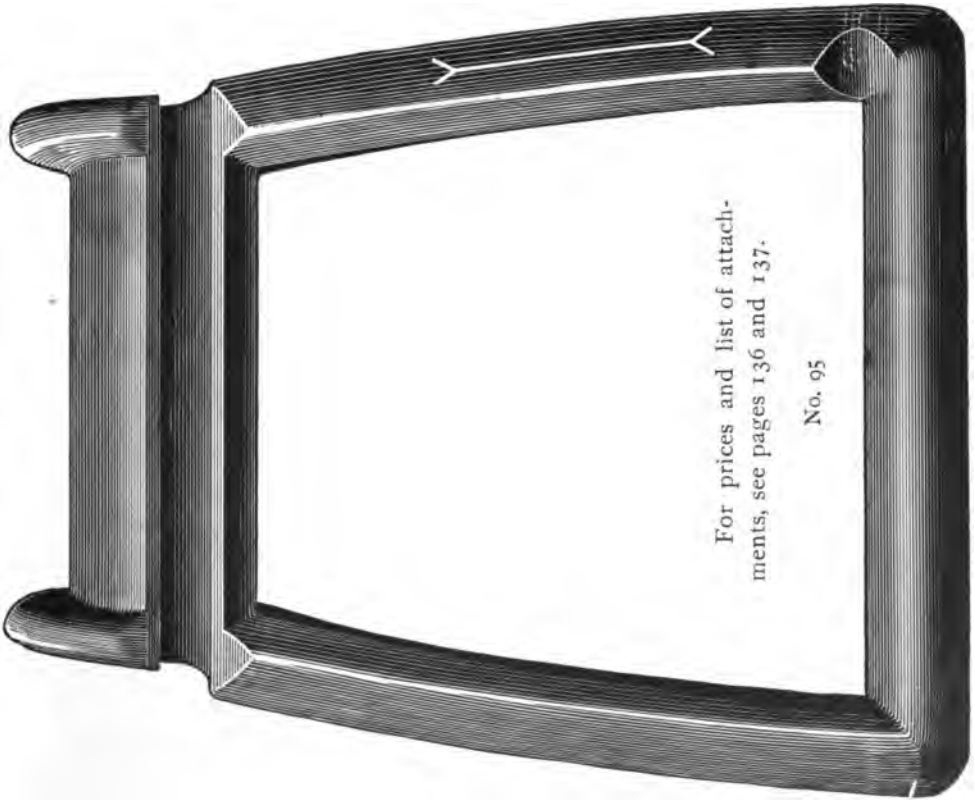
For prices and list of attachments for each chain, see pages 136 and 137.

Original Ewart Detachable Link-Belting—continued



No. 103

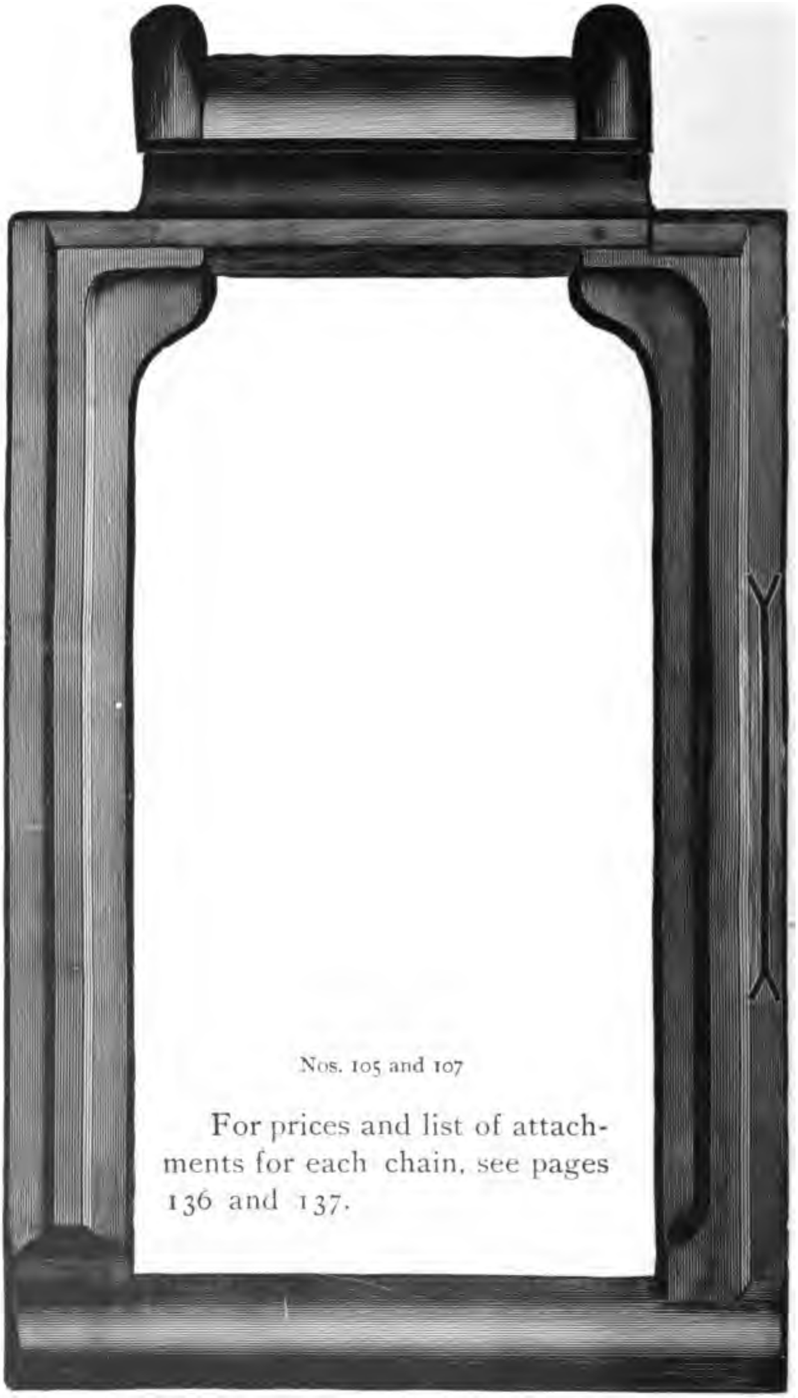
For prices and list of attachments, see pages 136 and 137.



For prices and list of attachments, see pages 136 and 137.

No. 95

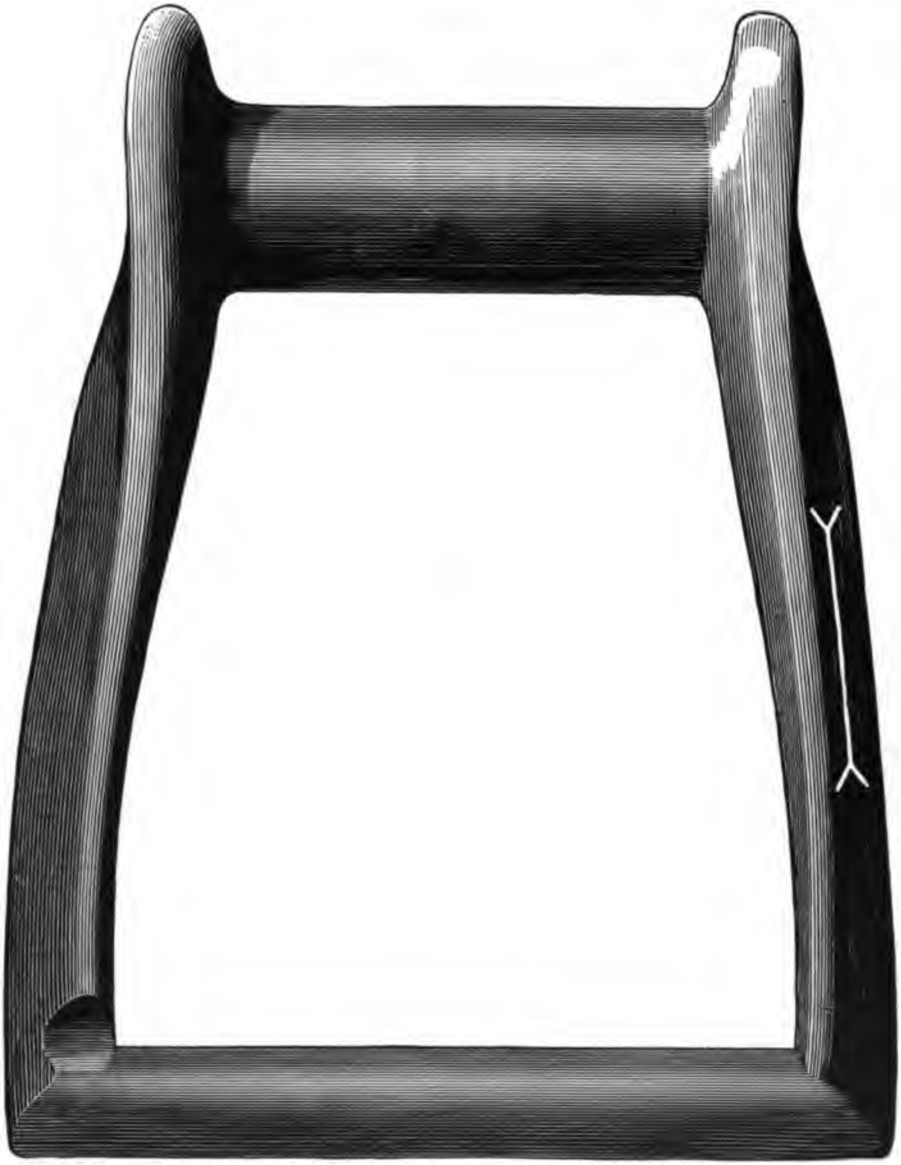
Original Ewart Detachable Link-Belting—continued



Nos. 105 and 107

For prices and list of attachments for each chain, see pages 136 and 137.

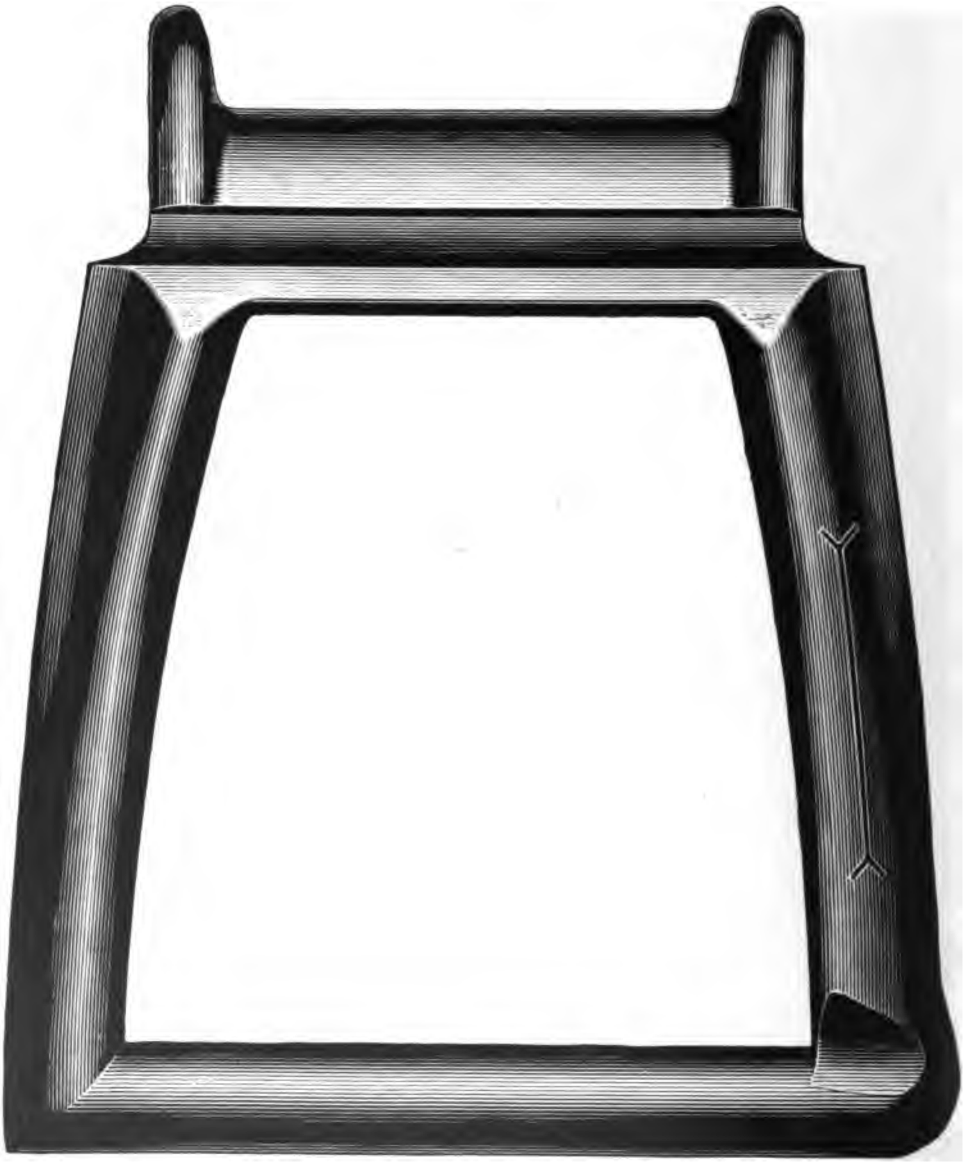
Original Ewart Detachable Link-Belting—continued



No. 108

For prices and list of attachments for each chain, see pages 136 and 137.

Original Ewart Detachable Link-Belting—continued



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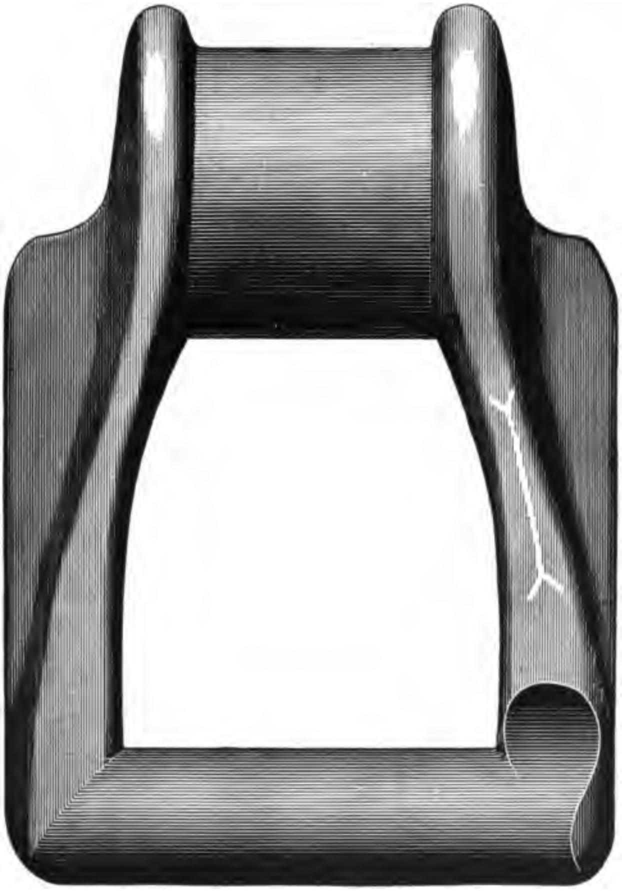
For prices and list of attachments for each chain, see pages 136 and 137.

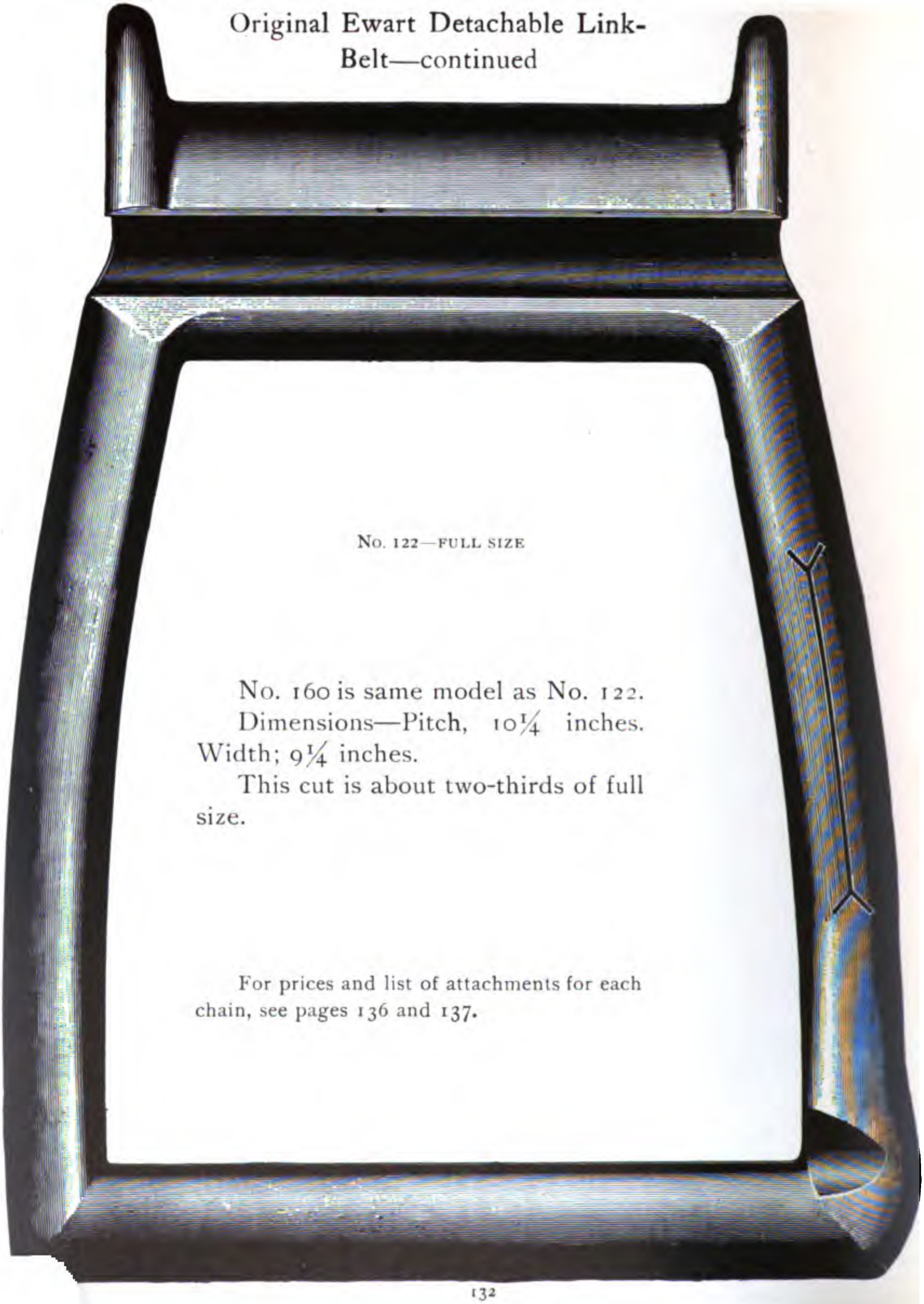
Original Ewart Detachable Link-Belting—continued



No. 114

For prices and list of attachments for each chain, see pages 136 and 137.

Original Ewart Detachable Link-Belt—continued



No. 122—FULL SIZE

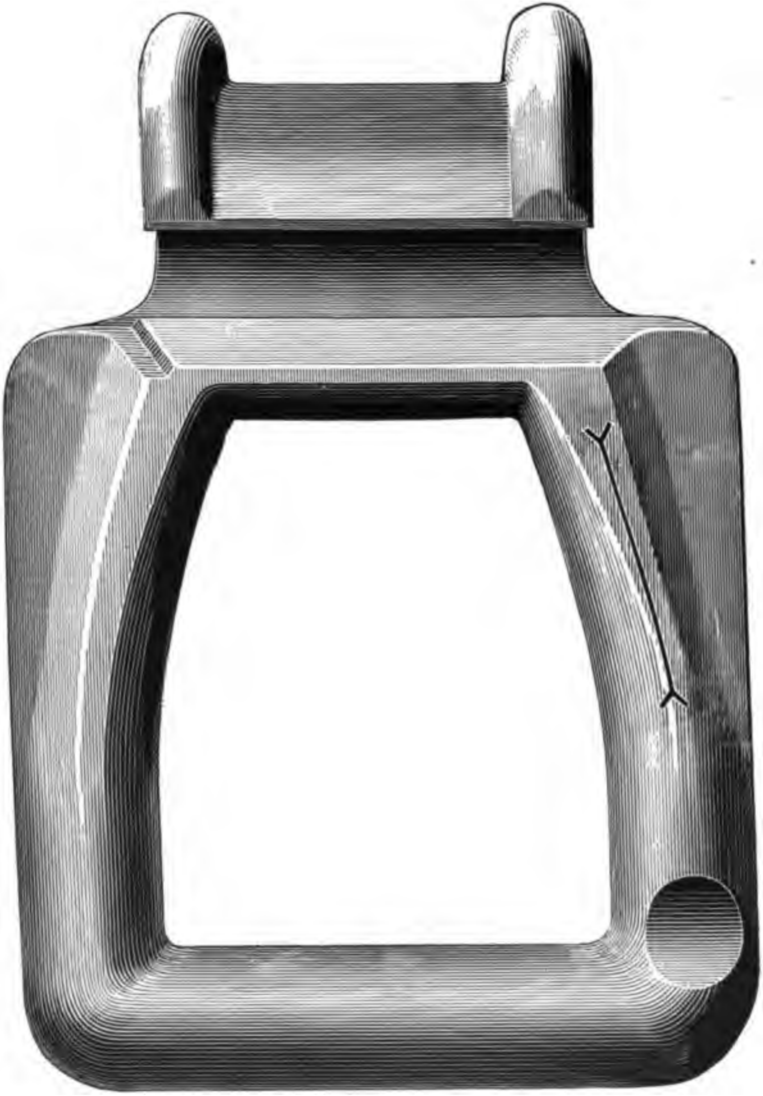
No. 160 is same model as No. 122.

Dimensions—Pitch, 10¼ inches. Width; 9¼ inches.

This cut is about two-thirds of full size.

For prices and list of attachments for each chain, see pages 136 and 137.

Original Ewart Detachable Link-Belting—continued

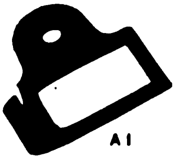


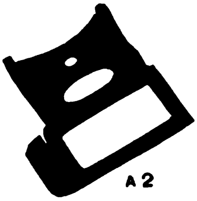
No. 124

For prices and list of attachments for each chain, see pages 136 and 137.

Attachments as Usually Made

For Ewart Detachable Link-Belting


A 1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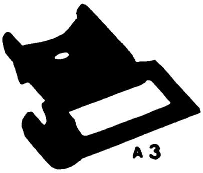
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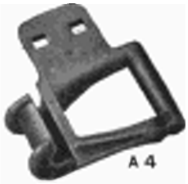
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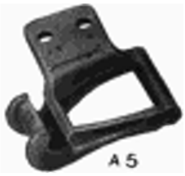
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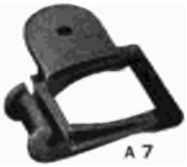
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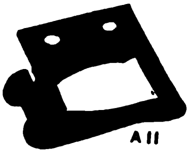
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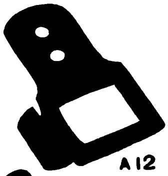
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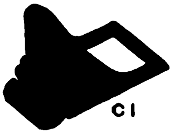
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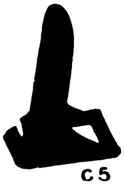
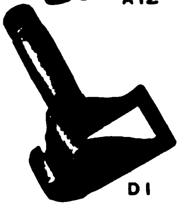

C 5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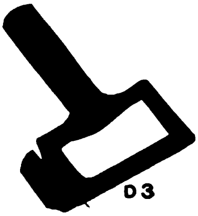
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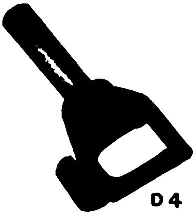
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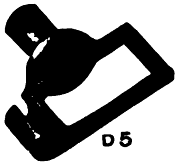
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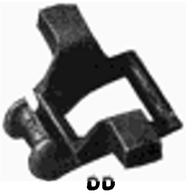
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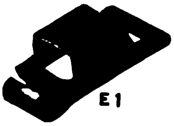
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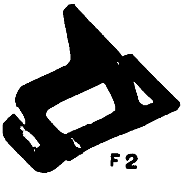
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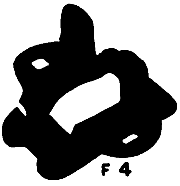
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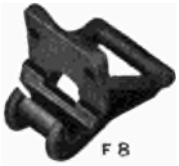
Attachments as Usually Made—continued

For Ewart Detachable Link-Belting



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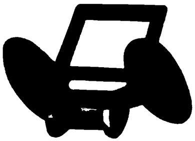

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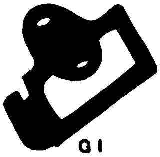

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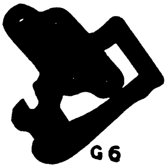

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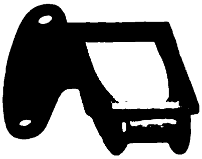

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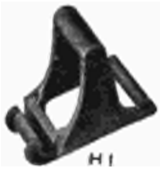

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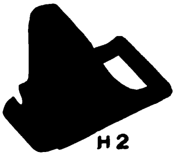

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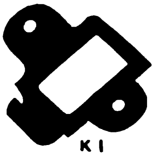

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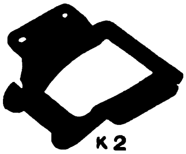

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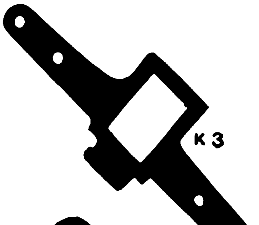

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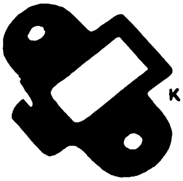

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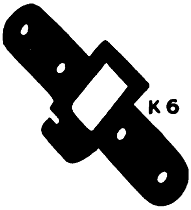

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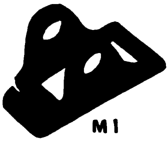

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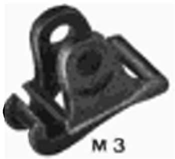

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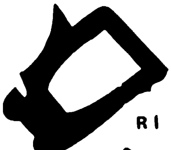

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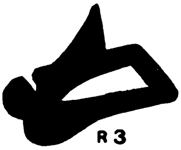

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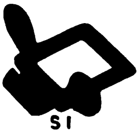

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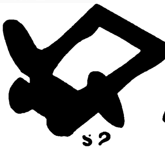

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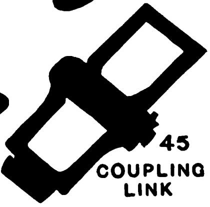


45
COUPLING
LINK

Price List of the Original Ewart Detachable Link-Belting

As Revised September 15, 1902

No.	PRICE PER FOOT.			Couplers, per Pair.	Links, per Foot.	Breaking Strain, Pounds.	Approximate in Leather Belting.
	All Plain Links.	Attachment Links.	With Attachments at Intervals.				
25	$0 12	$0 28	$0 17	$0 06	13.3	700	1 in. Single
32	12	25	17	06	10.4	1,100	1½ “ “
33	12	25	17	07	8.6	1,190	2 “ “
34	12	25	17	08	8.6	1,300	2½ “ “
35	12	25	17	08	7.4	1,200	2½ “ “
42	13	27	18	11	8.8	1,500	3 “ “
45	13	27	18	11	7.4	1,600	3½ “ “
51	17	30	22	12	10.4	1,900	3½ “ “
52	18	30	22	12	8.0	2,300	4 “ “
55	18	28	21	12	7.4	2,200	4 “ “
57	18	36	24	17	5.2	2,800	6 “ “
62	24	41	30	18	7.3	3,100	6½ “ “
66	24	41	30	18	6.0	2,600	6½ “ “
67	24	41	30	18	5.2	3,700	7 “ “
75	28	45	34	21	4.6	4,000	7½ “ “
77	28	45	34	21	5.2	3,600	8 “ “
78	32	56	40	28	4.6	4,900	10 “ “
83	36	67	53	37	3.0	4,950	12 “ “
85	40	70	54	50	3.0	7,600	9 “ Double
88	38	68	53	32	4.6	5,700	8 “ “
93	45	70	56	50	3.0	7,500	10 “ “
95	48	90	68	60	3.0	8,700	10 “ “
103	60	90	75	66	4.0	9,600	12 “ “
105	54	75	65	90	2.0	6,900	10 “ “
108	60	1 00	82	90	2.55	9,900	12 “ “
110	75	1 20	90	1 05	2.55	12,700	13 “ “
114	75	96	87	96	3.7	11,000	13 “ “
122	90	1 40	1 15	1 80	2.0	15,000	15 “ “
124	90	1 50	1 20	1 35	3.0	12,700	17 “ “
146	90	1 40	1 15	....	2.0	14,000	19 “ “

The above prices of attachments are for A^1, A^2, A^3, A^7, A^{11}, C^1, E^1, E^2, F^2, G^1, G^6, H^1, H^2, K^1, K^2, M^1, M^8, R^3, S^1, and S^2, and as they are now made for the respective chains. Other attachments will be furnished at special prices.

How to Obtain the Working Strains for Ewart Chains

For a speed of	Divide by	For a speed of	Divide by
200 ft. per minute and under	6	500 ft. per minute	12
300 “ “ “	8	600 “ “ “	16
400 “ “ “	10	700 “ “ “	20

The above strains are based on uniform loads.

List of Attachments

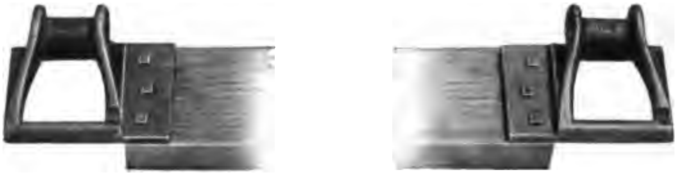
As Regularly Made for Original Ewart Link-Belting

25	**A1**		**A3**			**C1**	*D3*		*E1*					**G1**			**H2**		**K1**		**K5**	**K6**	**M1**		**S1**
32	**A1**	*A2*	**A3**			**C1**	*D3*		*E1*					**G1**					**K1**	**K3**	**K5**	**K6**	**M1**		**S1**
33	**A1**						*D3*		*E1*								**H2**		**K1**	**K3**	**K5**	**K6**	**M1**		**S1**
34	**A1**					**C1**			*E1*										**K1**						
35	**A1**	**A2**				**C1**			*E1*										**K1**		**K5**				**S1**
42	**A1**		*A3*			**C1**			*E1*										**K1**	**K3**	**K5**	**K6**			**S1**
45	**A1**		**A3**			**C1**	*D3*	**D5**	*E1*			**F2**		**G1**			**H2**		**K1**	**K3**	**K5**		**M1**		**S1**
51	**A1**																		**K1**		**K5**				**S1**
52	**A1**		**A3**			**C1**		*D5*	*E1*			**F2**		**G1**					**K1**		**K5**				
55	**A1**	**A2**				**C1**	*D3*		*E1*			**F2**							**K1**		**K5**		**M1**		**S1**
57	**A1**		**A3**	*A7*			*D3*	**D5**	*E1*			**F2**					**H2**		**K1**						**S2**
62	**A1**	*A2*	**A3**			**C1**		*D5*						*G1*					**K1**		**K5**				*S1*
66						**C1**											*H1*								
67	**A1**			*A7*	**A11**			**D5**	*E1*	**FF**		**F2**		**G1**			**H1**		**K1**						**S2**
75									*E1*								**H1**		**K1**				*M3*	**R1**	
77	*A1*								*E1*			**F2**		*G1*	**G6**	**G19**	**H1**		**K1**					**R3**	**S2**
78			**A3**	*A7*	**A11**			**D5**	*E1*	**FF**		**F2**	**F4**	*G1*	**G6**	**G19**	**H2**	*H6*	**K1**				**M3**	**R1**	**S2**
83	*A1*							**D5**	*E1*	**FF**				**G1**									**M3**		
85									*E2*	**FF**		**F2**	**F5**		**G6**		**H1**		**K2**	**K4**		**K7**	*M3*		**S2**
88	*A1*		**A3**	*A7*					*E1*	**FF**		**F2**	**F8**	*G1*	**G6**	**G19**	**H1**	*H6*	**K1**					**R1**	**S2**
93														**G1**											
95												**F2**					**H1**		**K2**						
103	*A1*				**A11**				*E1*			**F2**	**F8**		**G6**	**G19**	**H2**	*H6*	**K1**				**M3**	**R1**	
105											**F1**						**H2**		**K2**	**K4**			**M3**		
107											**F1**									**K4**			**M1**		
108										**FF**		**F2**		**G1**					**K2**						
110												**F2**							**K2**						
114					**A11**								**F8**		**G6**				**K1**				*M3*		
122												**F2**							**K2**				*M3*		
124					**A11**							**F2**	**F8**	*G1*	**G6**				**K1**				**M3**	*R1*	
146									*E2*			*F2*	**F5**						**K2**	**K4**					
160																			**K2**						

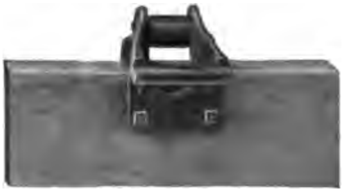
We aim to carry *large stocks* of the attachments marked in *full face* type. Some of those marked in italics may have to be made to order, the general demand not being sufficient to justify carrying a large stock.

In addition to the above we have patterns of hundreds of Special Attachments. Prices quoted on application giving full particulars of special requirements.

Method of Using Ewart Detachable Link-Belt Attachments



A. ATTACHMENTS



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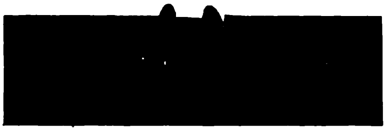

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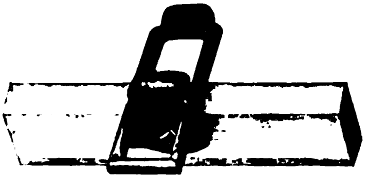

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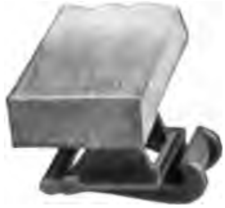

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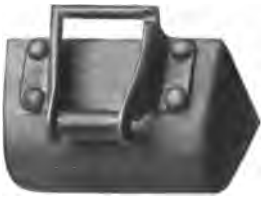

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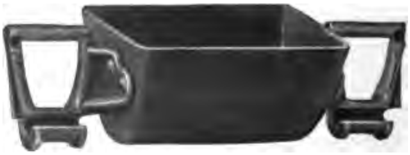
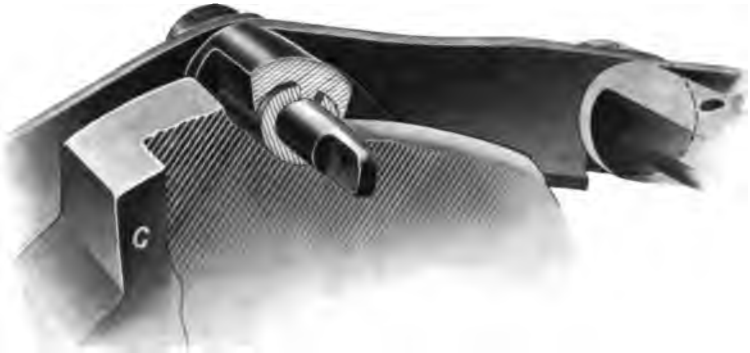


G. ATTACHMENTS

The Ley Detachable Steel-Bushed Chain

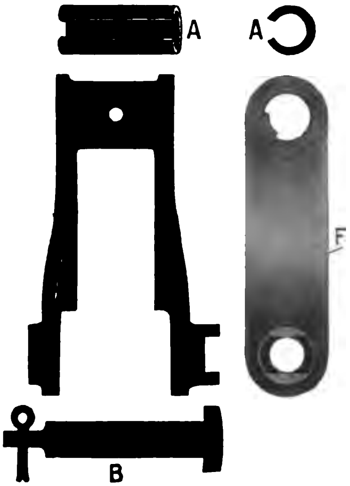
Patented



SECTION OF CHAIN SHOWING ITS POSITION ON SPROCKET WHEEL.

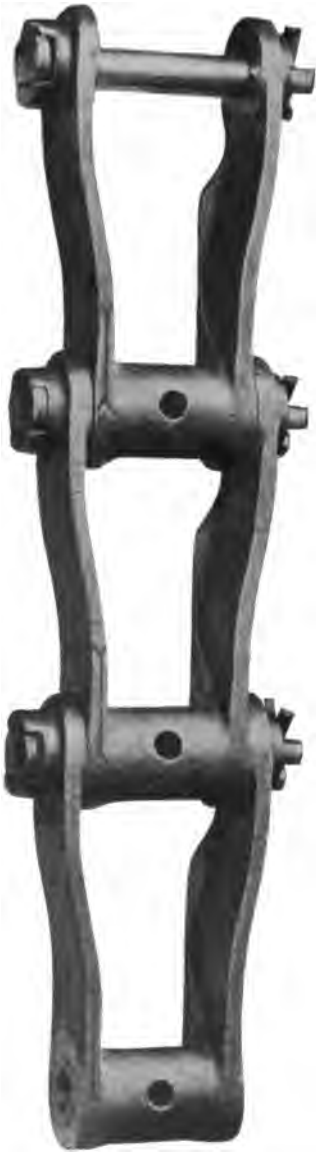
USED in elevating and conveying gritty materials. The difficulty with all other bushed chains is that while wear in the joint is minimized by hardened bushings, the *external* wear due to the rubbing of the chain on the sprocket wheel, which experience shows is by far the greater of the two, is not provided for. In the Ley Bushed Chain both the *external* and *internal* wear are confined to hardened and renewable steel pins and bushes.

Each link consists of a malleable iron frame "F," case-hardened bushing "A," and steel pin "B." The bridged end of the link is cut away on the under side, so that only the case-hardened bushing comes in contact with the wheel teeth. Neither bushing nor pin can turn in the link, so there is no wear of the malleable iron frame; and as both pins and bushings can be reversed when partly worn, and renewed at relatively small cost when worn out, Ley chain is practically indestructible Link-Belting. It should, in all cases, be run with the teeth of the wheel bearing against the outside of the bushings, as indicated by cuts above.



This chain is run on chilled sprocket wheels or traction wheels. For list, see Index.

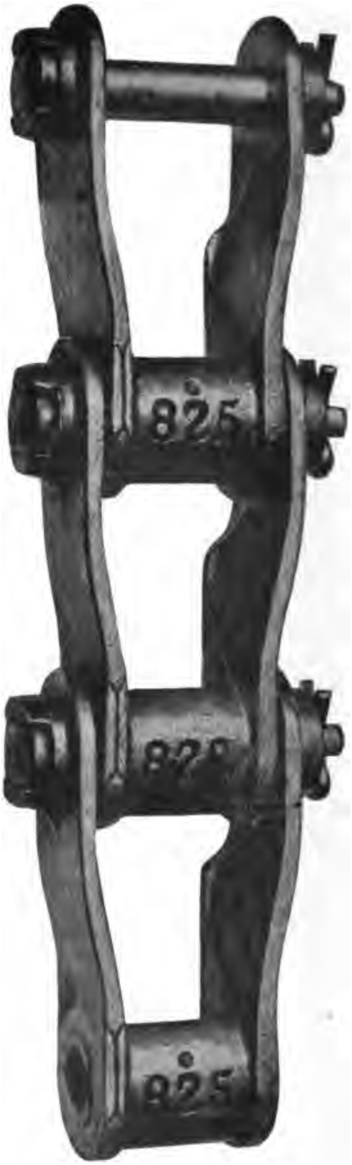
No. 823



CUT NOT FULL SIZE.

Pitch, 4 in.; width, 3½ in.; pin, ½-in. steel; attachments, A^{42}, F^2, G^6, K^2; breaking strain, 18,000 lbs.

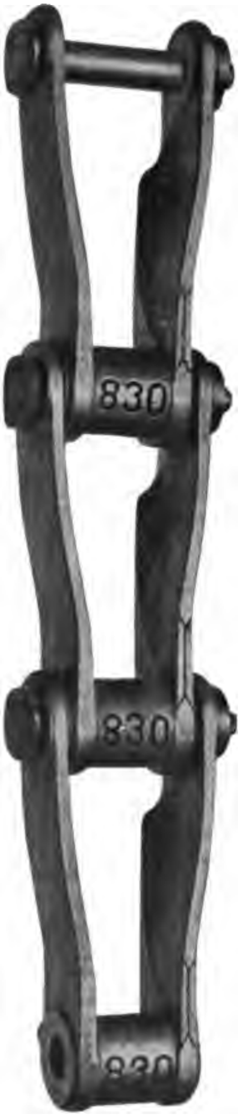
No. 825



CUT NOT FULL SIZE.

Pitch, 4 in.; width, 4 in.; pin, ¾-in. steel; attachments, A^{38}, A^{42}, F^2, G^6, K^1, K^2; breaking strain, 28,360 lbs.

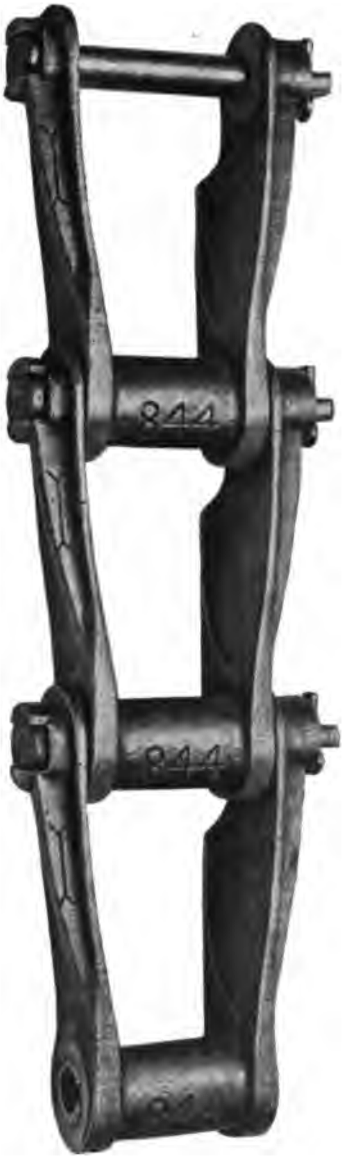
No. 830



CUT NOT FULL SIZE.

Pitch, 6 in.; width, 4¼ in.; diameter pin, ¾ in. attachments, A^{42}, F^{2}, FF, G^{6}, K^{2}, M^{25}; breaking strain, 30,000 lbs.

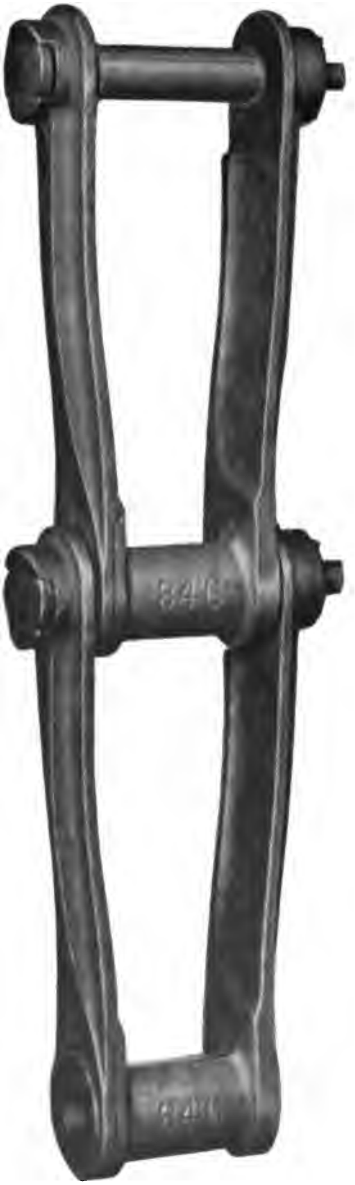
No. 844



CUT NOT FULL SIZE.

Pitch, 6 in.; width, 6 in.; diameter pin, ¾ in. attachments, A^{44}, K^{2}; breaking strain, 32,100 lbs.

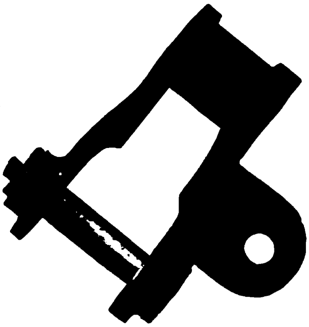
No. 846



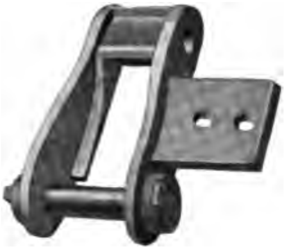
CUT NOT FULL SIZE.

Pitch, 9 in.; width, 6 in.; pin, $\frac{7}{8}$-in. steel; attachment, K^2; breaking strain, 34,000 lbs.

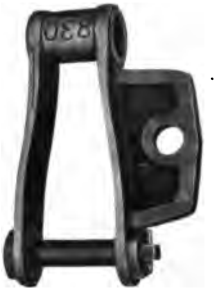
Attachments for Ley Bushed Chains



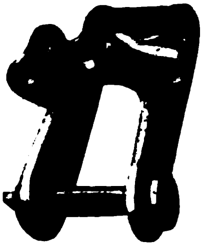
A^{22}



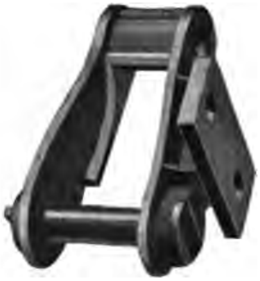
A^{38}



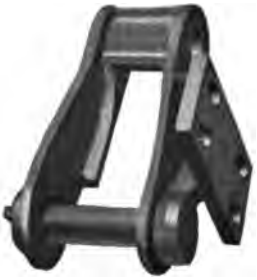
A^{42}



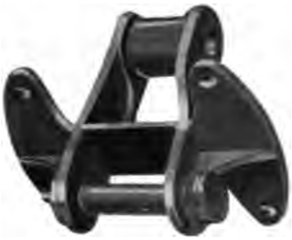
F^{2}



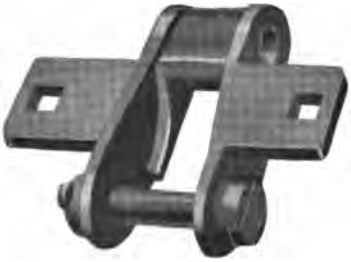
G^{1}



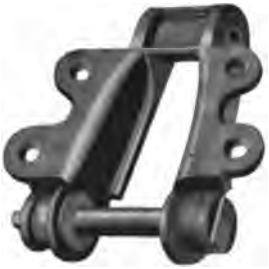
G^{6}



FF



K^{1}



K^{2}

Ley Patent Bushed Roller Chain

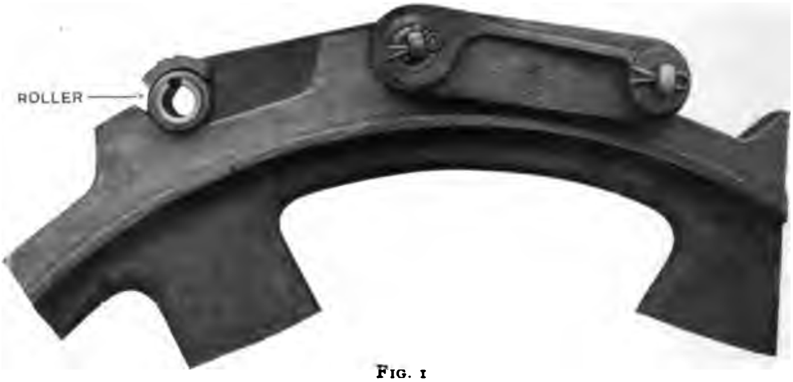


Fig. 1

FIG. 1 SHOWS POSITION OCCUPIED BY THE CHAIN ON SPROCKET WHEEL. OBSERVE THAT THE DUCTILE PORTION OF THE LINK DOES NOT COME IN CONTACT WITH EITHER THE RIM OR TEETH OF WHEEL.

FIG. 2 SHOWS THE COMPONENT PARTS OF A LINK CUT THROUGH CENTER OF BRIDGE OR CROSS BAR, THE BUSHING AND ROLLER APPEARING IN THEIR ENTIRETY. THE CONNECTING PIN, BEING THE SAME AS FOR THE LEY BUSHED CHAIN, IS NOT SHOWN.

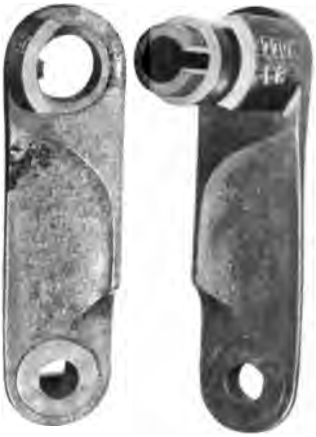


Fig. 2

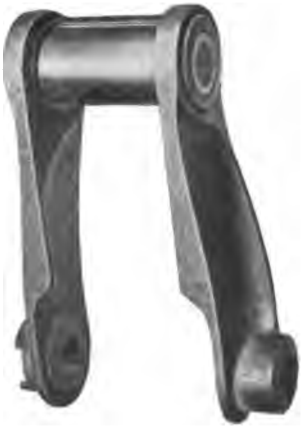


Fig. 3

FIG. 3 SHOWS THE SAME LINK COMPLETE. THE ROLLERS BEING HELD SECURELY IN PLACE BY THE BUSHINGS DO NOT SEPARATE WHEN THE LINKS ARE DISCONNECTED. THE WHOLE FORMS A PERMANENT UNIT WITHOUT LOOSE PARTS.

Ley Patent Bushed Roller Chain

IT is an established fact that chains of the "Rolling" type are the most serviceable for transmitting power under heavy strains, for the reason that the rollers working against the teeth and on the rim of the wheel constantly present new surfaces of contact, while with ordinary chains this contact is confined to a single point, which is rapidly destroyed by frictional wear. The wear on both chain and wheel is still further reduced by the substitution of rolling instead of sliding friction, as the chain links engage and disengage the sprocket teeth.

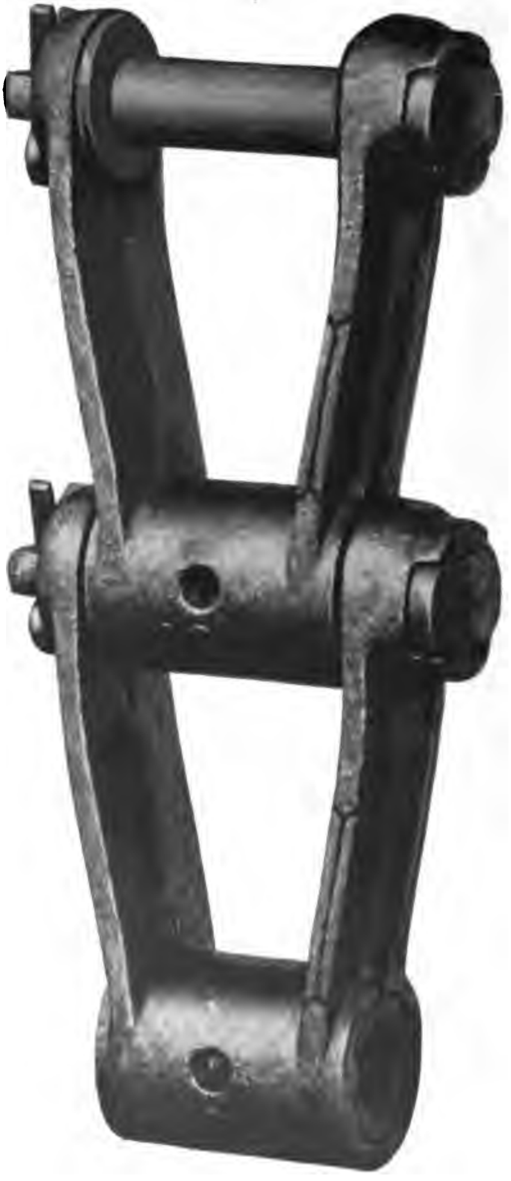
In the Ley Patent Bushed Rolling Chain we retain all the essentially good points of the original Ley Bushed Chain. In fact its construction is identical except that we recess the interior of the cross bar and insert a roller, as indicated by cuts on opposite page. To fully explain the position and action of this roller we show a link in its entirety, and a section of same link cut through center of cross bar. The latter view illustrates the relative positions of roller, bushing, and cross bar, while the cut at top of same page indicates the position of roller when engaged by the sprocket tooth. It will be observed that as in the original Ley Bushed Chain no ductile portion of the link is exposed to wear, the latter being confined exclusively to the connecting pin, bushing and roller. As these parts wear out they can be easily replaced without sacrificing the link itself, and the chain becomes substantially new.

This chain has given splendid service in elevating and conveying highly abrasive materials under conditions which have rapidly destroyed all other types.

The Ley Bushed Rolling Chain is made in the following sizes: No. 823, No. 825, No. 835, and No. 844, which are identical with the corresponding numbers of Ley Bushed Chain, excepting that they will not run on the same sprocket wheels. Selection of wheel sizes can, however, be made from same list. See Index.

No. 926 is an enclosed bushed chain used for power transmissions. It has renewable bushings and pins and is a most excellent chain for the purpose for which it was designed.

No. 926

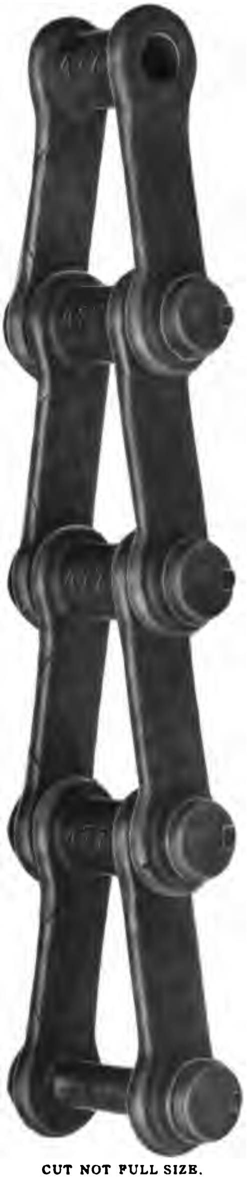


CUT NOT FULL SIZE.

Pitch, 4 in.; width, 4 in.; pin, ¾-in. steel; no attachments; breaking strain, 25,780 lbs. Used for power transmission purposes only.

Detachable Closed End Pin Chains

No. 477



CUT NOT FULL SIZE.

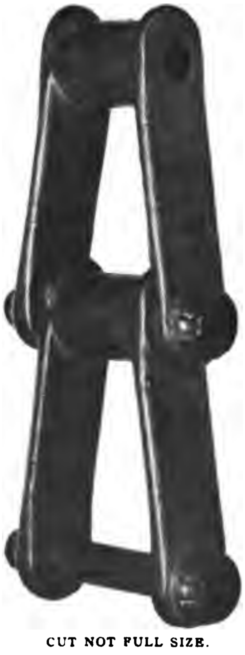
THESE Chains are designed to meet the demand for a closed-joint chain of greater strength than the Ewart Chains, and yet not as expensive as the Ley Bushed Chains.

The proportions of the links are such as to avoid shrinkage strains and to provide ample bearing surface as well as strength.

The best refined malleable iron is used for the links and they are made absolutely square and true to pitch.

These Chains are excellent for both elevator and conveyor service where little grit is encountered.

No. 488

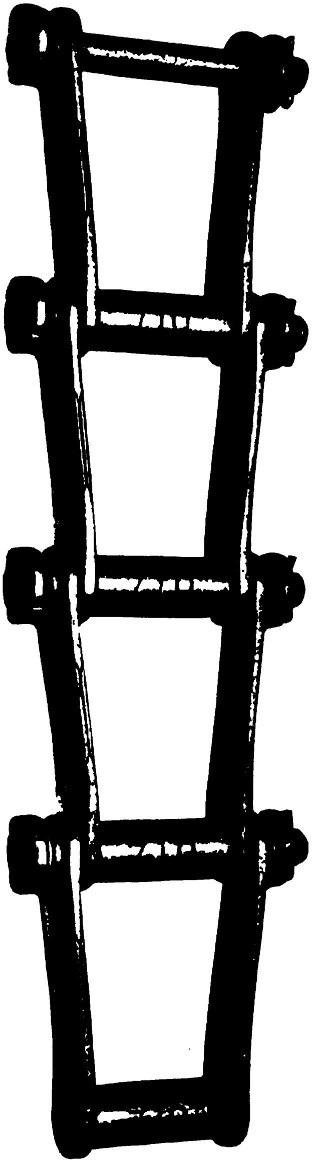


CUT NOT FULL SIZE.

Pitch, 2.31 in.; diameter pin, $\frac{7}{16}$ in.; attachments, E^{28}, F^{2}, K^{1}; breaking strain, 10,000 lbs.

Pitch, 2.61 in.; diameter pin, $\frac{7}{16}$ in.; attachments, G^{6}, K^{1}; breaking strain, 10,800 lbs.

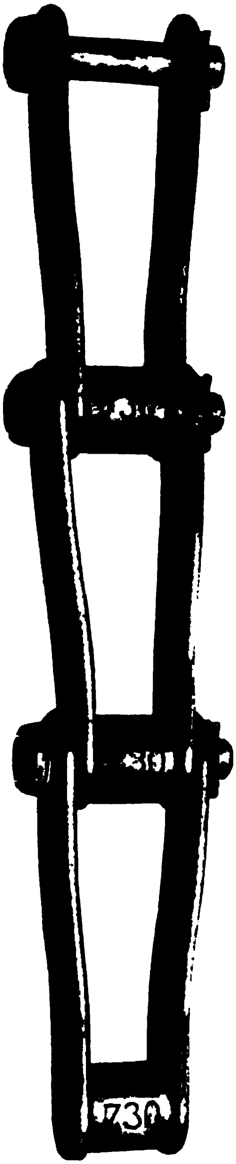
No. 710



CUT NOT FULL SIZE.

Pitch, 4.72 in.; diameter pin, $\frac{11}{16}$ in.; attachments, F^2, K^2; breaking strain, 23,400 lbs.

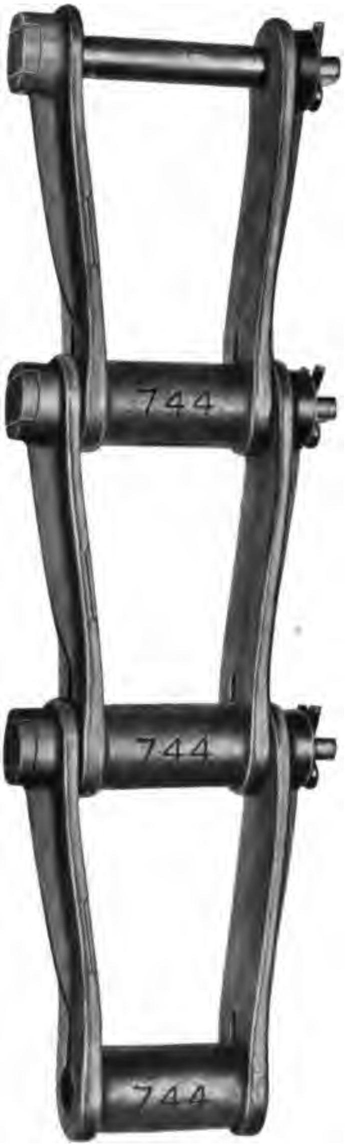
No. 730



CUT NOT FULL SIZE.

Pitch, 6 in.; diameter pin, ¾ in.; attachments, A^{42}, A^{58}, F^2, FF, G^6, M^{34}, K^2; breaking strain, 24,700 lbs.

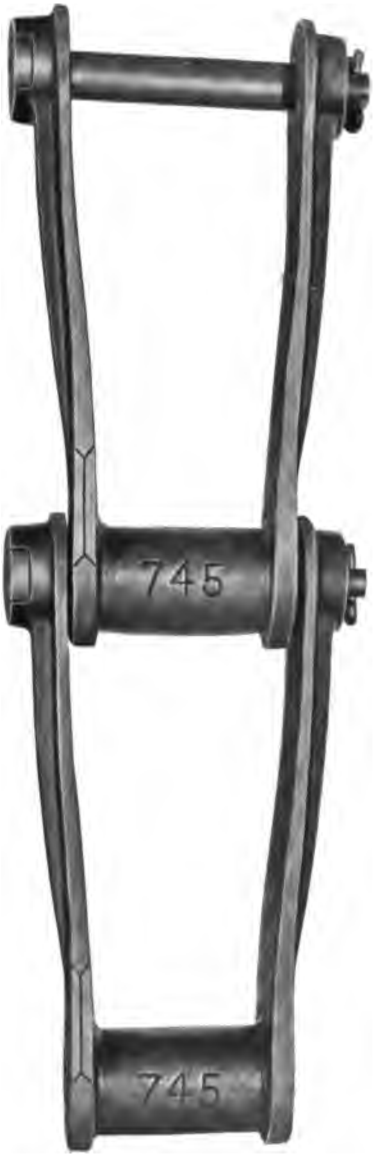
No. 744



CUT NOT FULL SIZE.

Pitch, 6 in.; diameter pin, ¾ in.; attachment, K²; breaking strain, 31,200 lbs.

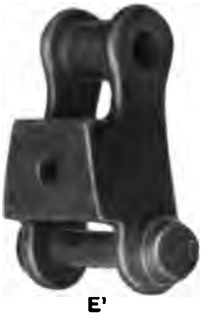
No. 745



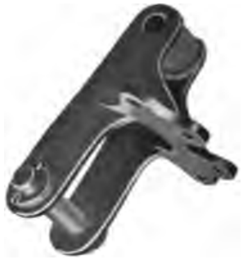
CUT NOT FULL SIZE.

Pitch, 9 in.; diameter pin, ⅞ in.; attachments, F², K², A⁴²; breaking strain, 50,000 lbs.

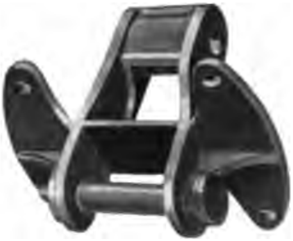
Attachments for Link-Belt Pin Chains



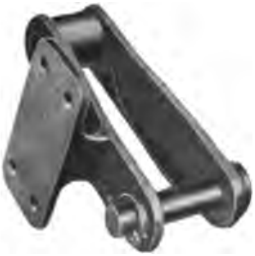
E^1



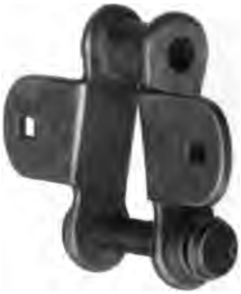
F^2



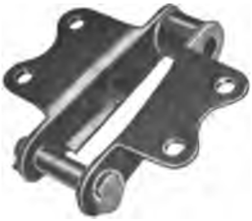
FF



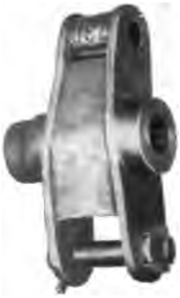
G^6



K^1



K^2

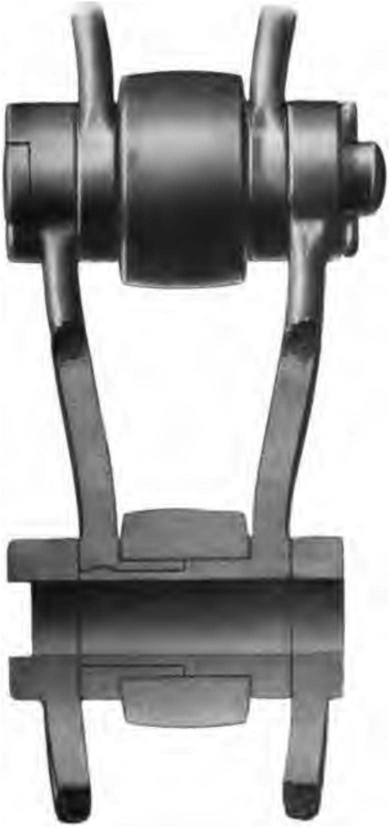


M^{34}

Link-Belt Rolling Chains

Malleable Iron

PATENTED



REGISTERED
ROLLING CHAIN
TRADE MARK

THEY are so constructed that the rollers cannot become jammed between side bars, but actually roll under all conditions.

They are made of the best refined malleable iron, and the metal is so distributed as to insure freedom from shrinkage, strains, perfect annealment, and accuracy in pitch and shape of links.

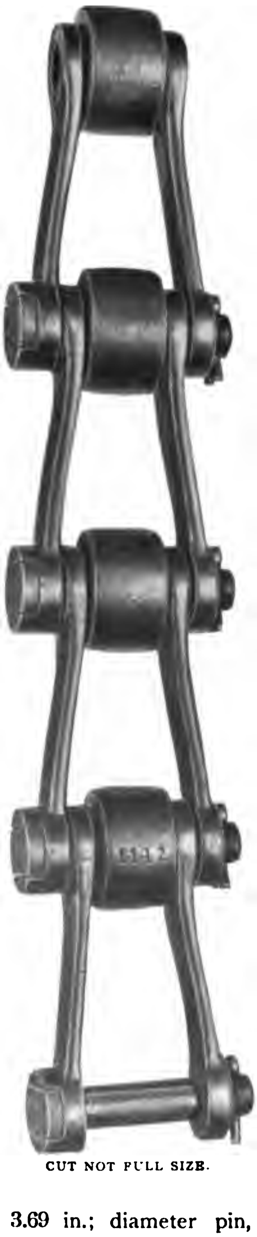
The holes in all rollers are machine finished to accurately fit the end bars.

Another distinctive feature of the Rolling chain is that while the links can be readily detached or removed, each pair of side-bars with its roller forms one permanent link and does not separate into loose parts when detached.

Prices are quoted on application.

For lists of Sprocket Wheels, see Index.

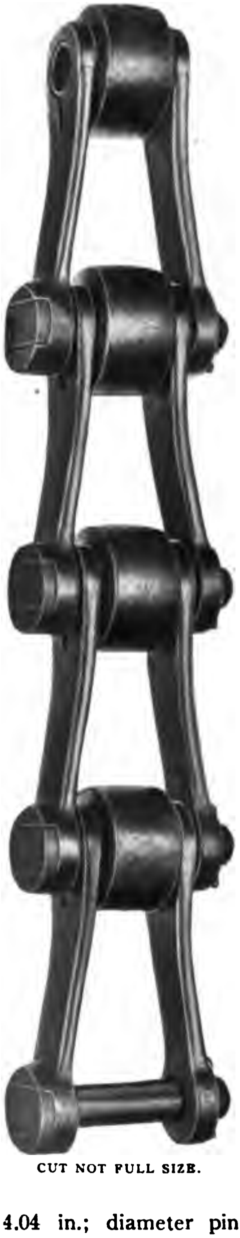
No. 1112



CUT NOT FULL SIZE.

Pitch, 3.69 in.; diameter pin, $\frac{5}{8}$ in.; attachments, A^{42}, G^{6}, G^{19}, K^{2}; breaking strain, 12,800 lbs.

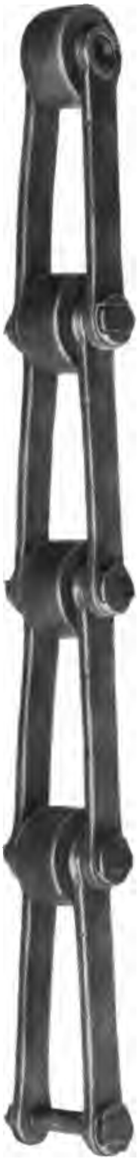
No. 1113



CUT NOT FULL SIZE.

Pitch, 4.04 in.; diameter pin, $\frac{11}{16}$ in.; attachments, A^{3}, A^{42}, A^{79}, F^{2}, G^{6}, G^{19}, K^{2}; breaking strain, 19,000 lbs.

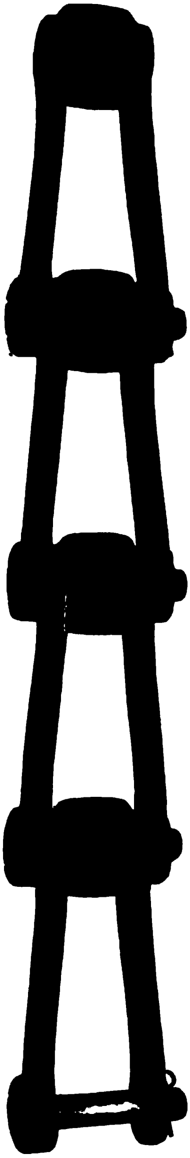
No. 1120



CUT NOT FULL SIZE.

Pitch, 4 in.; diameter pin, ⅜ in.; attachments, A^{11}; breaking strain, 7,000 lbs.

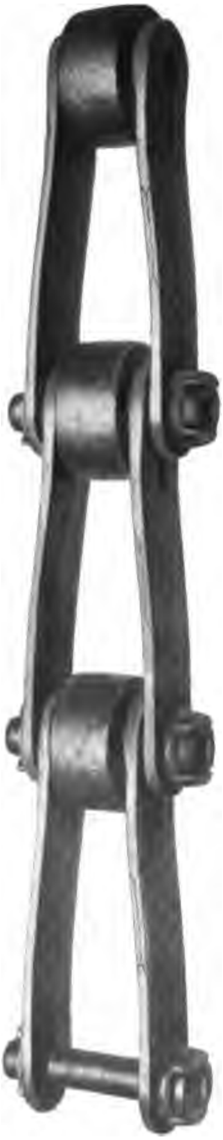
No. 1124



CUT NOT FULL SIZE.

Pitch, 4 in.; diameter pin, ½ in.; attachments, M^{26}; breaking strain, 13 000 lbs.

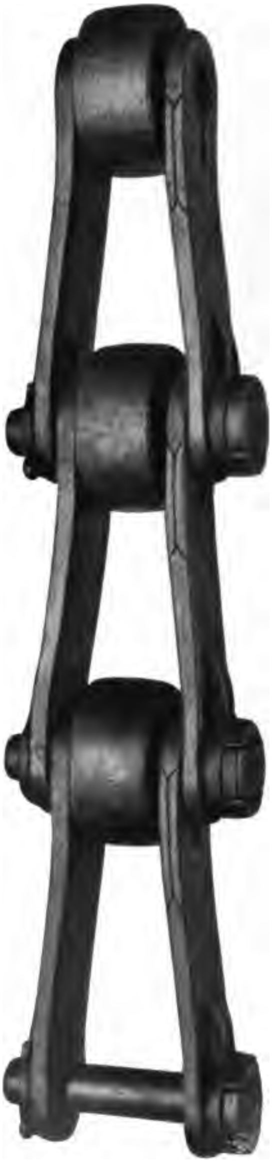
No. 1130



CUT NOT FULL SIZE.

Pitch, 6 in.; diameter pin, ¾ in.; attachments, A^{22}, A^{42}, F^2, G^6, K^2, M^1; breaking strain, 24,700 lbs.

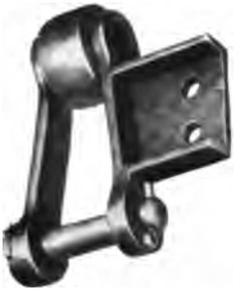
No. 1131



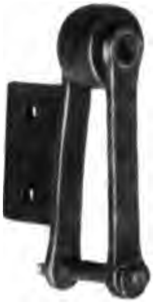
CUT NOT FULL SIZE.

Pitch, 6 in.; diameter pin, ⅞ in. attachments, A^{42}, G^6, M^{34}; breaking strain, 37,700 lbs.

Attachments for Rolling Chains

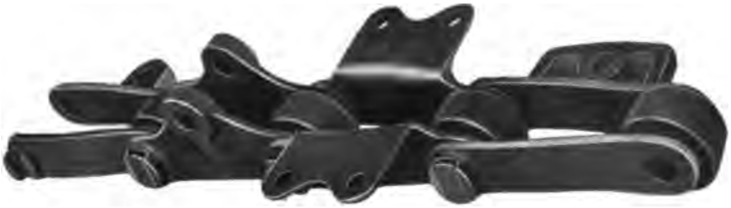


A^{3}

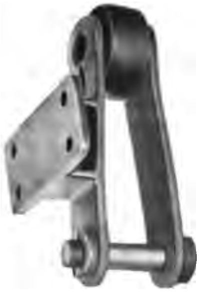


A^{27}

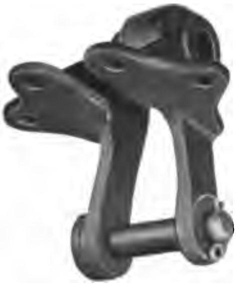
G^{19}



A^{22} M^{1} K^{2} A^{42}



G^{6}



F^{2}

Long Pitch Malleable Iron Rolling Chains

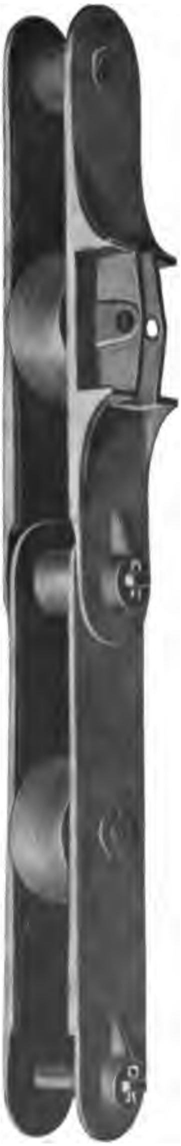
Patented

THE use of very long pitch chains has only been practicable since the invention of our patented equalizing gears, described on another page.

The chains here shown are designed to resist extra heavy strains and severe service. The carrying rollers are placed midway in the link, between the side bars. This permits the rollers to be renewed without disconnecting the links, or putting the machine out of service, a distinct advantage possessed by no other type of chain.

To minimize the wear on the sprockets, sleeves or rollers of small diameter are also provided at the points of articulation.

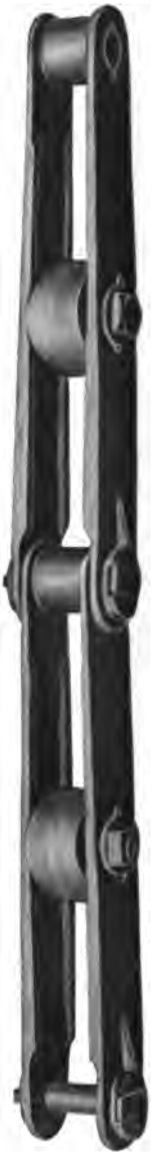
In all other respects, the construction of the chain corresponds to the illustration on page 151.



No. 1180

NOT FULL SIZE

Pitch, 24 in.; attachments, A^{53}; 7 in. diameter self-oiling rollers.



No. 1170

NOT FULL SIZE

Pitch, 18 in.; attachments, A^{42}, G^{8}, G^{19}; 3⅜ in. diam. self-oiling rollers.

Steel Rolling Chains

24-INCH PITCH BUSHED STEEL ROLLING CHAIN.

WE make chains of the type shown on this and the following page, in a variety of standard styles and sizes, ranging from 3-inch to 24-inch pitch, and special sizes to suit requirements.

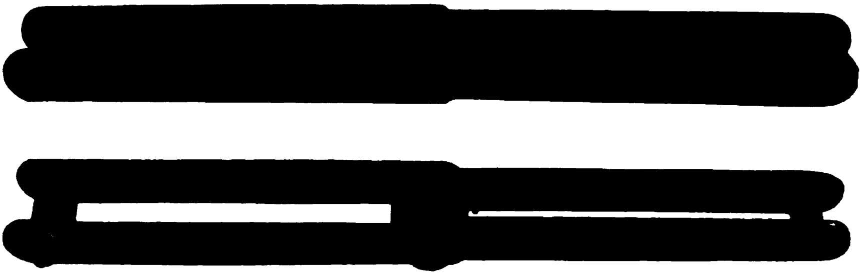
The 18-inch and 24-inch pitch chains are made as shown, or when desirable with small rollers at points of articulation and large rollers in center of links, as described on opposite page.

These chains are unsurpassed both in points of strength and durability. The inner side bars are connected by steel bushings, having shouldered ends which fit slotted holes in the bars and prevent turning, while the outer side bars are rigidly attached to the connecting pins. This arrangement not only insures a maximum bearing surface, but it confines the articular wear to the steel pins and bushings, which can be easily renewed. The side bars sustain no wear and are practically indestructible.

Owing to their relative lightness and great strength, sizes larger than 6-inch pitch are extensively employed for elevators, conveyors, and carriers, where the strain in the chain and character of service is very severe. The small sizes, while occasionally employed both for elevators and conveyors, are more commonly used for power transmission purposes. In many cases where great strength is required, and conditions favor durability, we furnish corresponding sizes without the steel bushings.

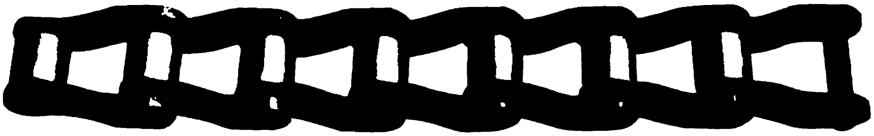
Prices on chains and sprocket wheels furnished on application.

Bushed Steel Rolling Chains—continued

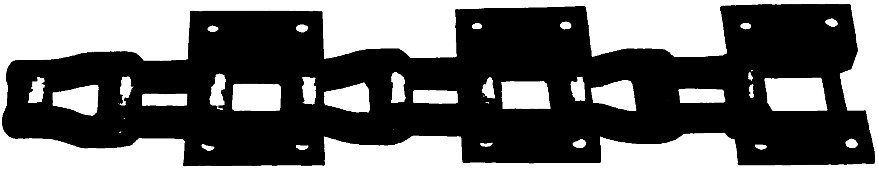


18-INCH PITCH BUSHED STEEL ROLLING CHAIN
SHOWING BOTH SIDES OF LINKS.

9-INCH PITCH STEEL ROLLING CHAIN, NOT BUSHED
CHAINS OF THIS PITCH ARE ALSO FURNISHED WITH STEEL BUSHINGS AS DESCRIBED ON PRECEDING PAGE.



8.076-INCH PITCH STEEL BUSHED ROLLING CHAIN
FOR POWER TRANSMISSION PURPOSES.

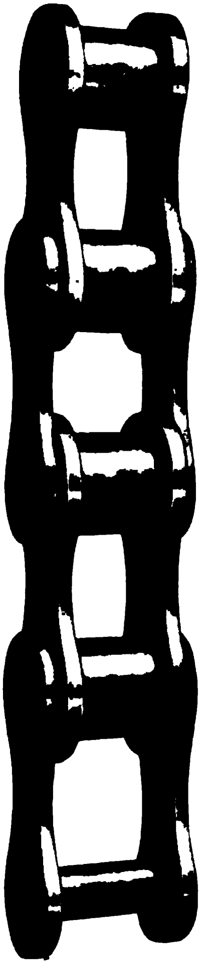


3.076-INCH PITCH STEEL BUSHED ROLLING CHAIN
AS EMPLOYED FOR ELEVATORS, CONVEYORS, OR CARRIERS.

Steel Rolling Chains

Accurately Machined

For High Grade Power Transmissions



THESE chains have been scientifically designed in every dimension to provide the greatest wearing surface in proportion to their proper working loads. They are finished throughout as accurately as a watch and are made from the highest grades of steel especially selected for the purpose, after a long series of experiments and tests. They are therefore of minimum weight, in proportion to strength and durability, an important factor in the life of a fast running chain.

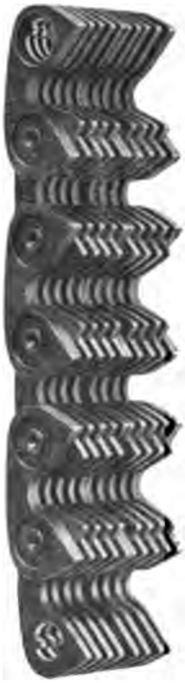
The general design is indicated by cut herewith, the inner links being connected by bushings, onto which they are pressed and which are protected on the outside by rollers.

By reason of their relative lightness and strength, these chains are adapted for the transmission of large powers at speeds heretofore beyond the range of any chain belting excepting our Renold Chain shown on the two following pages, and to which these are supplementary.

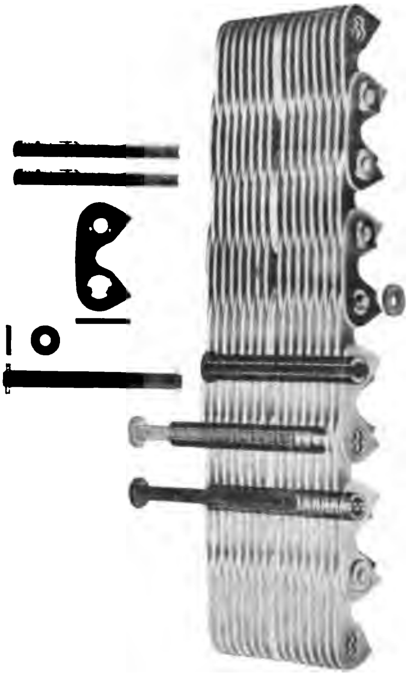
Furnished in sizes from ¾ in. to 4 in. pitch, with accurately cut cast iron or steel sprocket wheels.

The Renold Silent Chain Gear

Patented



½, ⅝, and ¾ inch pitches.



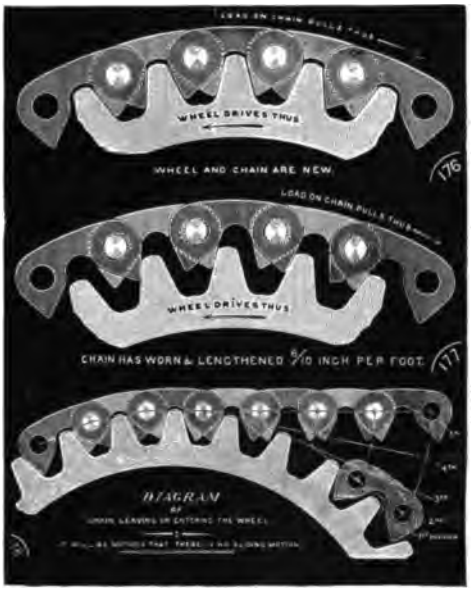
1, 1¼, 1½, 1¾, and 2 inch pitches.

IS remarkable in that it will transmit any amount of power at high speed and without noise.

The surfaces in the joint which move with reference to each other, are case-hardened steel, and the link merely transmits the tensile strain and locks rotating parts in position. Elongation is therefore reduced to a minimum.

The Renold Silent Chain Gear can be run at high speeds. Is equally perfect in its action with a new chain or with an old one. Will transmit any amount of power. Gives a positive velocity ratio. Can be used on short centers. Can be used in a hot place, or in a damp place. Does away with excessive journal friction. Will run in either direction.

The Renold Silent Chain Gear is superior to leather or rubber belting because: It cannot slip. It can be run on short centers. It can be used in a hot place, or in a damp place. It is run slack and there is therefore no excessive journal friction. There is no danger of sparking.



THE ACTION OF THE SILENT CHAIN.

It is superior to spur gearing, because—It is quiet. It may be run at high speeds. It does not require fixed centers. It does not require short centers. There is no sliding contact. The action is smoother and the gear is more durable.

It has been extensively used for the spindles and feeds on machine tools, for motor driving, for engine and turbine governors, for special machinery, and for power transmissions of all sizes and varieties.

Any amount of power may be transmitted by it.

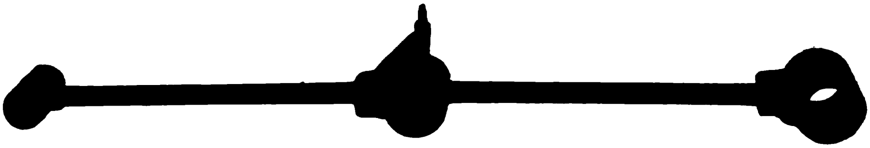
It is not experimental, having seen a number of years' successful service in this country.

We shall be pleased to send a booklet giving full details, with particulars as to sizes, etc., as well as photographs illustrating every known application, on request.

50 HORSE-POWER PUMP DRIVE.

Monobar

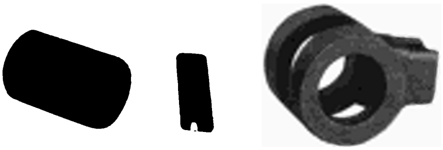
Patented June 13, 1893



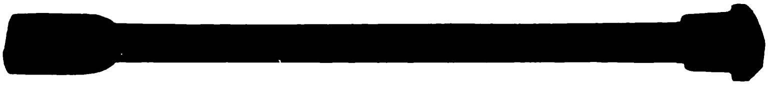
A SERIES of bolts, flexibly connected, with attachments for conveyor flights or elevator buckets.

For conveying purposes is superior in all points of excellence to any chain or equivalent device in present use, and this judgment has been endorsed by its record in heavy work.

Above cut shows two links of "Monobar" assembled, having F-2 attachment for flight in center.

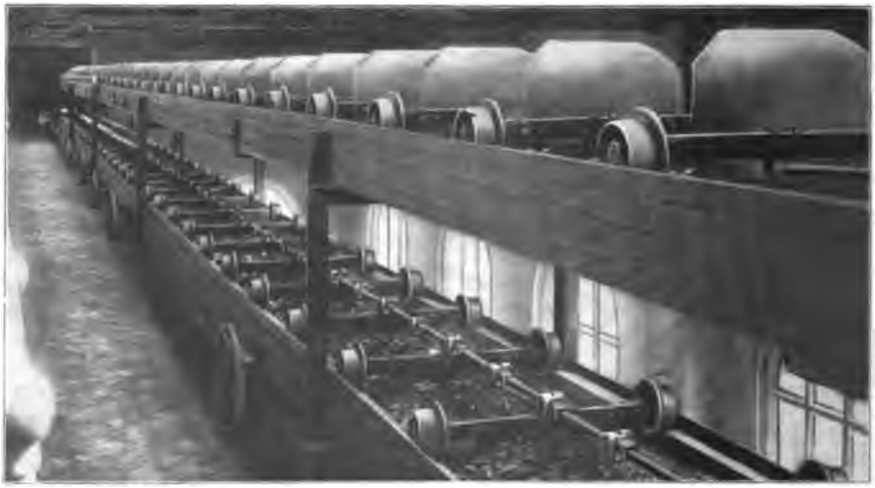


KNUCKLE. KEY. PLAIN SOCKET.



BAR.

SHOWING CONSTITUTENT PARTS OF "MONOBAR" EXCEPTING ATTACHMENTS.



MONOBAR ROLLER FLIGHT CONVEYOR

IN BOILER HOUSE OF ALLEGHENY CITY WATER WORKS, ALLEGHENY CITY, PA.

Monobar—continued

Characteristics

STRONG.—Having no welds, which are the chief element of weakness in wrought chains, and the malleable iron joints being properly proportioned with uniform distribution of metal, the WORKING STRAIN is that of high grade wrought iron bolts of the diameter employed.

LIGHT.—Its design permitting use of long bolts, the knuckles or joints are relatively few, and it is lighter for its strength than any chain in present use.

DURABLE.—The bearing surfaces are larger than in any known chain, and are designed for free lubrication while in motion. THERE IS ABSOLUTELY NO WEAR OF THE BOLTS, which, therefore, need never be renewed.

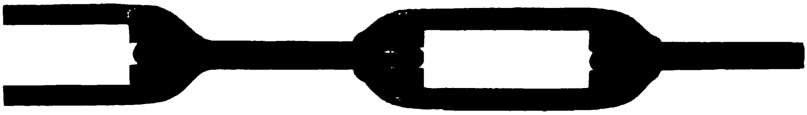
INEXPENSIVE.—First cost is materially less than for any chain of equivalent strength, and the bolts being permanent, expense of restoration to perfect condition is limited to cost of new joints or couplings.

Monobar Chains

No.	Diameter of Bolts, Inches.	Pitch, Inches.	Price.	Breaking Strain, Lbs.
612	¾	12		18,200
618	¾	18		18,200
818	1	18		30,000
824	1	24		30,000
1018	1¼	18		41,000
1024	1¼	24		41,000
1224	1½	24		63,000
1636	2	36		120,000

Factor of safety varies with conditions of the work to be done.

Dodge Chain

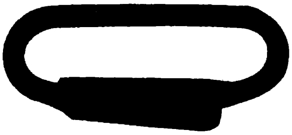


DODGE CHAIN

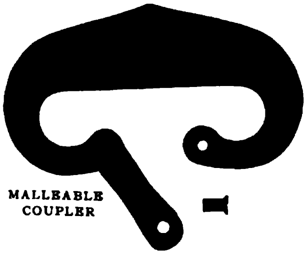
DODGE Chain is an accurately pitched cable chain in which *detachable bearing blocks* are inserted between the links. These blocks present large bearing surfaces to both links and wheel teeth, keep the links at right angles to each other, preserve the pitch of the chain, and materially increase its strength. For these reasons it is the only satisfactory cable chain to run on toothed wheels, and the only one that has ever been generally employed in long and heavily worked conveyors and elevators. The construction of the chain allows it to turn any number of angles, in any direction, in the same installation.

For this chain we have F attachments for flights; K^{2} attachments for buckets, etc., and coupling links.

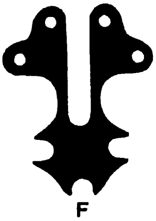
For wheel list, see Index.



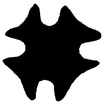
SPLIT COUPLER



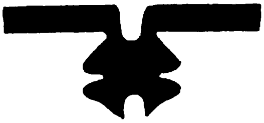
MALLEABLE COUPLER



F
ATTACHMENT FOR FLIGHTS



PLAIN BEARING BLOCK



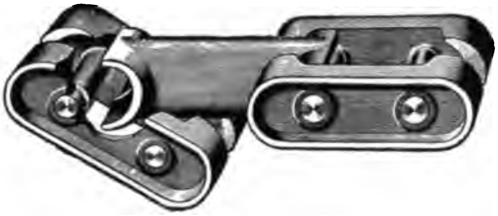
K^{2}
ATTACHMENT FOR BUCKETS

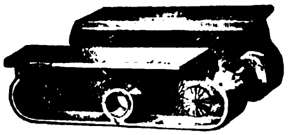
Price List

Size, Inches.	Pitch, Inches.	Working Strain.	Price per Foot.	Bearing Block.	Attachments.		Split Connecting Links.
					Flight.	Bucket.	
½	6	4,000	$0 90	$0 20	$0 30	$0 30	$1 10
	6	6,000	1 00	20	30	30	1 25
	8	9,000	1 25	30	40	40	1 50
	20	9,000	1 00	....	....	....	....
	8¼	12,000	2 25	....	....	....	....
		12,000	1 70	50	70	70	2 00

IN B

Giant Chain





K^2 ATTACHMENT

LOG TOOTH

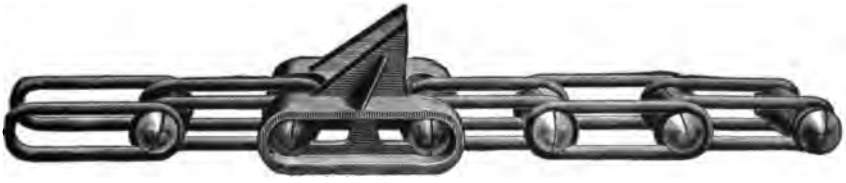
THE Giant is a strong, detachable chain, and has been in use many years, giving entire satisfaction in car hauls, barrel elevators, log hauls, heavy apron conveyors, and other severe duties.

Price List

Size.	Pitch, Coupler and Double Link, Ins.	Price Per Foot.	Double Links, Price Each.	Coupler.	K^2 or Slat Links.	K^5	All K Attachments.	Log Tooth.
600........	6	$1 00	$0 30	$0 20	....	$0 40	$1 20	$0 70
1200........	12	90	60	30	$0 80	80	1 10	....
1050........	10	1 30	75	35	....	1 05	1 68	1 40
1075........	10	1 40	80	40	....	....	....	1 50

For List of Sprocket Wheels, see Index.

The "Howe" Detachable Wrought Iron Bull Chain, with Log Tooth



The Howe Bull Chain is composed of accurately pitched wrought iron cable links held in place by malleable iron separable pins, all links being detachable.

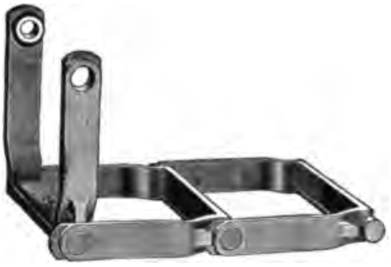
The log teeth, which are inserted five feet apart, are made in one solid piece, without screws or rivets to work loose and cause trouble.

⅝ in. Chain; working strain, 12,000 lbs. Price, $1.50 per ft.
¾ " " " " 18,000 " " 2.25 " "
Log tooth every five feet.

For Sprocket Wheels, see Index.

Nos. 550 and 555

Detachable Sawdust Conveyor Chains



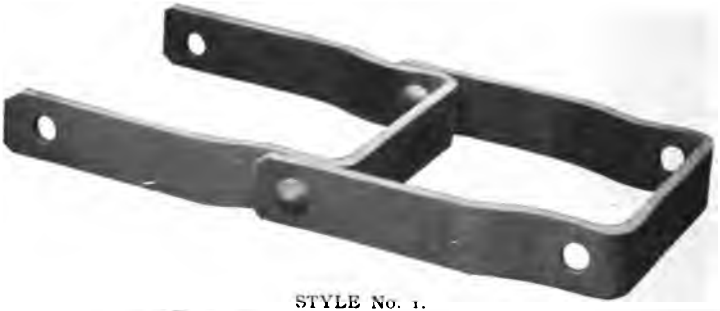
A LOW-PRICED malleable iron chain, combining the detachable feature with lightness and strength.

It is used for horizontal conveyors, handling sawdust, chips, coal, screenings, etc.

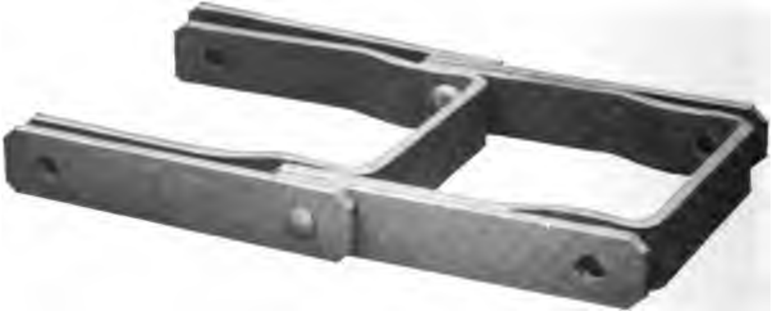
	Price per ft.
No. 550.—Width, 7 in., pitch, 6 in., ultimate strength, 5,000 lbs	$0 50
No. 555.—Width, 8 in., pitch, 8 in., ultimate strength, 9,000 lbs	80

For list of Sprocket Wheels, see Index.

Steel Chains for Conveying Refuse



STYLE No. 1.



STYLE No. 2.

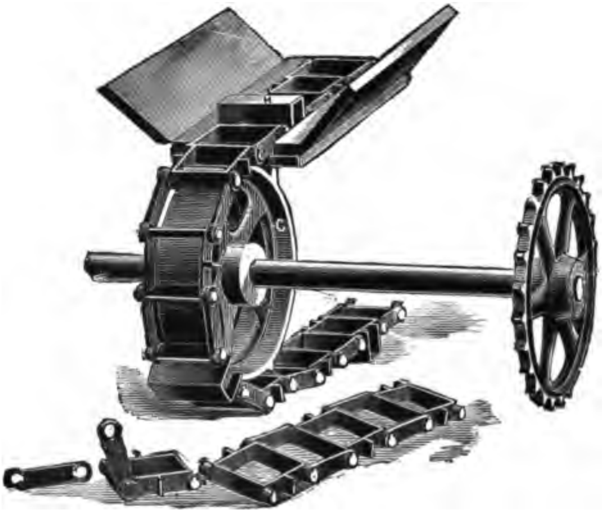
Pitch, Inches.	Width, Inches.	Stock, Inches.	PRICE.	
			Style No. 1.	Style No. 2.
6	7	1/4 x 1 1/2	$0 65	$1 10
6	12	5/16 x 1 1/2	1 25	1 80
8	8	3/8 x 1 1/2	1 10	1 85
8	12	3/8 x 2	1 70	2 60

For list of Sprocket Wheels, see Index.

No. 580 Block Chain

Patented

For Handling Slabs, Sawdust, and General Offal



"STRONG BOX LINKS" (H^2 attachments) cast solid, inserted every 8 feet, carry everything before them.

The Chain is 6⅝ inches wide, 1½ inches deep, and the H^2 attachments project 1½ inches above the top of the chain.

The wheels generally employed are 20-inch diameter, and make about 30 revolutions per minute.

Conveyor Trough should have inclined sides, as shown above, and be made of hardwood plank, maple, or oak.

Two Chains are used side by side in very large mills.

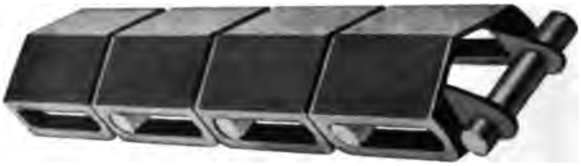
As this Chain has attachment links, it will handle slabs, sticks, etc., up an incline.

Ultimate strength, 7,000 pounds.

Price, with H^2 attachments every 8 feet, 60 cents per foot.

For sprocket wheels, see Index.

No. 500 "Steeple Top" or Transfer Chain



The No. 500 Steeple Top Chain is designed for horizontally transferring packages, barrels, sheet, skelp, and bar iron, lumber, etc. In the lumber mills, oil refineries, and rolling mills, where it has been extensively used, it has given entire satisfaction.

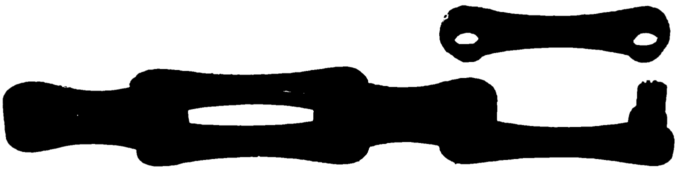
Two or more parallel strands are run in channels. The top only projecting above the channel permits the material to be loaded upon and taken from it transversely. Its working strain is 2,000 pounds.

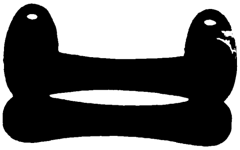
Price, 65c. per foot.

For Sprocket Wheels, see Index.

Tubular Chain

Patented



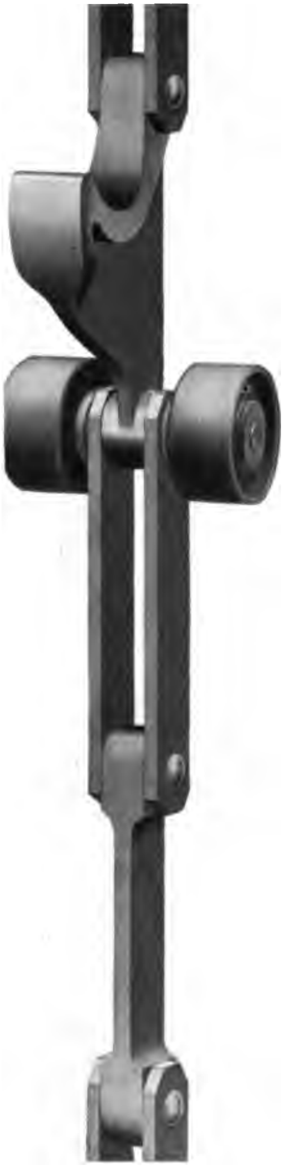


The Tubular Chain is non-detachable, has large wearing surfaces, no rivets, and is especially adapted for use in elevators and conveyors doing heavy work.

			PRICE PER FOOT.	
No.	Pitch, Inches.	Working Strain, Pounds.	Plain.	With Attachments.
625	6	3,500	$0 90	
1225	12	4,000	80	$0 90
1250	12	5,000	90	1 00

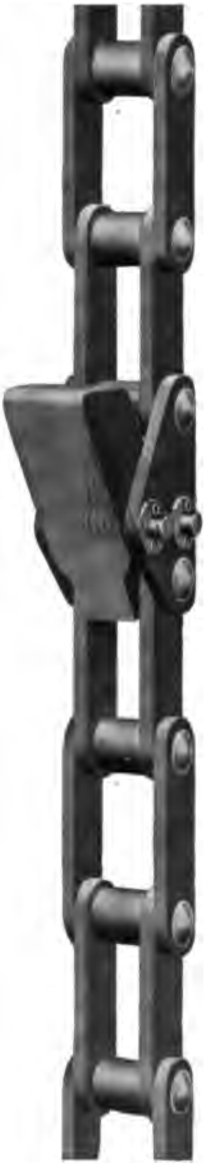
For Sprocket Wheels, see Index.

Steel Car Haul Chains



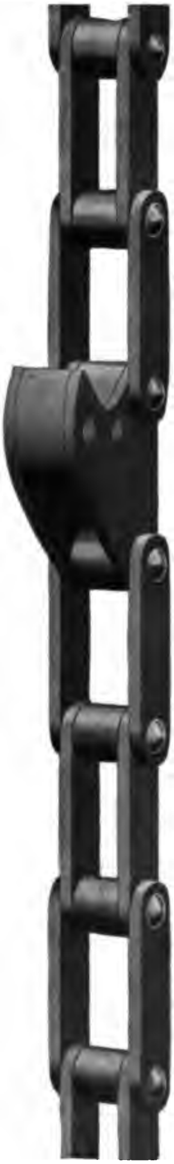
STANDARD LINK-BELT CAR HAUL CHAIN

HAVING DROP FORGED STEEL CENTER BARS AND CAST STEEL HOOKS, SUITABLE FOR THE MOST SEVERE SERVICE.



CAR HAUL CHAIN WITH SPRING TILTING HOOK

SUITABLE FOR AUXILIARY HAULS AND FOR UP-HAULS REQUIRING A CHAIN OF MEDIUM STRENGTH.

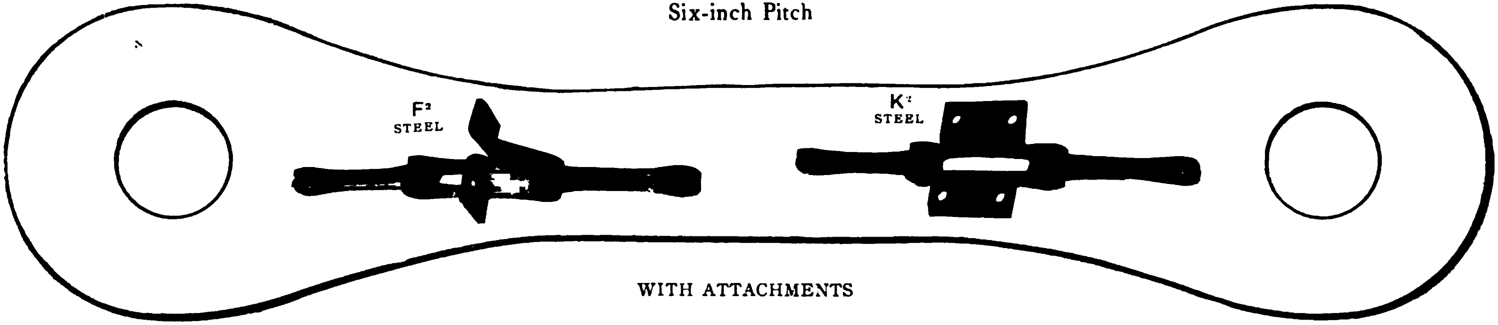


LIGHT CAR HAUL CHAIN

FOR RETARDING EMPTY CARS ON DOWN GRADES, SUITABLE FOR LIGHT WORK ONLY.

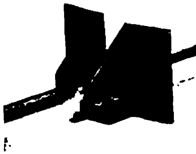
Steel Ice Chain

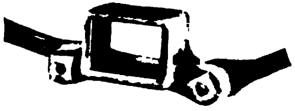
Six-inch Pitch

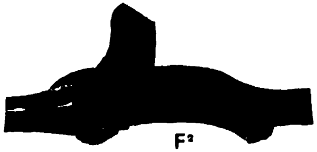


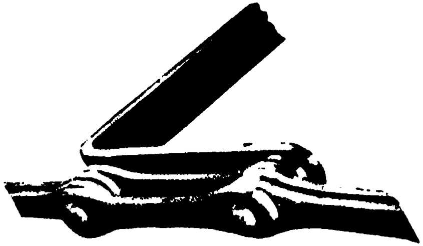
WITH ATTACHMENTS

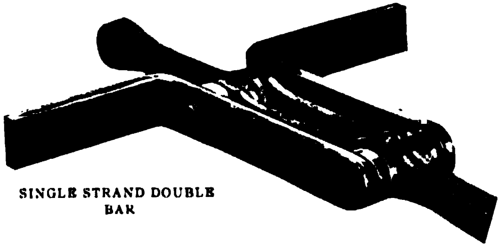
THIS CHAIN IS VERY LARGELY USED FOR HANDLING ICE AND IN PACKING-HOUSE WORK. WE ARE PREPARED TO MAKE THIS AND SIMILAR CHAINS OF VARIOUS SIZES AND THICKNESS OF STEEL AND CONSTANTLY CARRY A LARGE STOCK ON HAND FOR THE PROMPT FILLING OF ORDERS. PRICES QUOTED UPON APPLICATION.


S


B

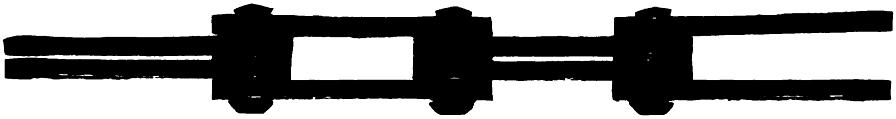

F^2
CAST IRON

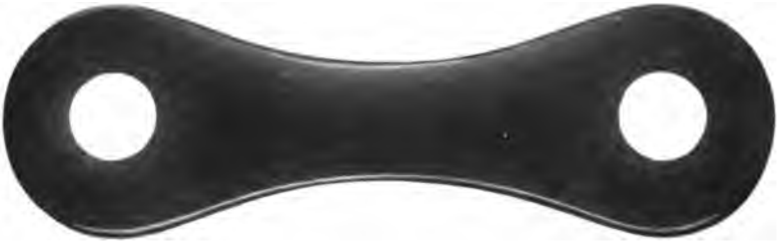

DOUBLE STRAND SINGLE BAR


SINGLE STRAND DOUBLE BAR

Steel Hog Scraper Chain

$3\frac{9}{32}$-inch Pitch





Sprocket Wheels made with solid teeth or cast steel removable teeth.

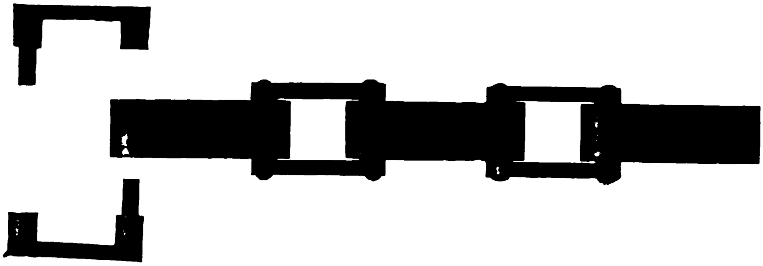
Orders filled from stock.

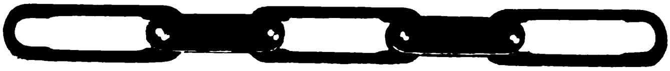
Prices on application.

No. 1260

Cane Conductor Chain

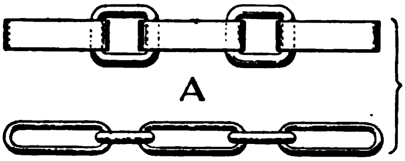
Malleable Iron



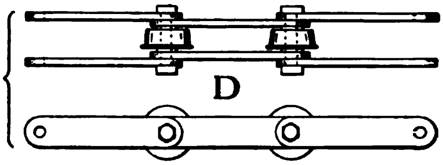


Prices on application.

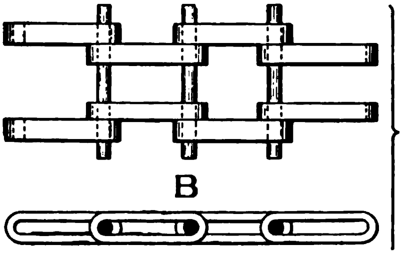
Miscellaneous Steel Chains



A



D



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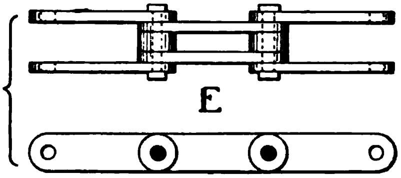
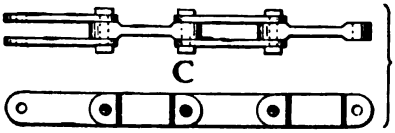
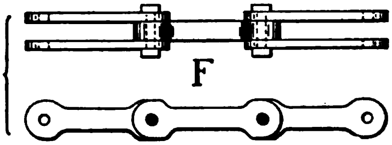


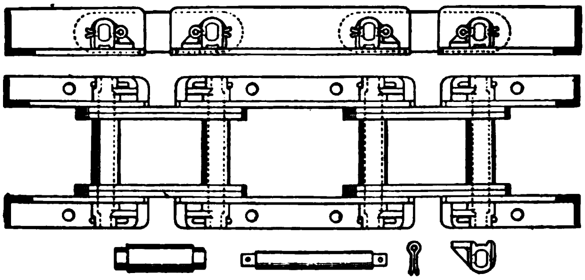
E



C



F



G

Above are illustrated a few forms of special chains which we make in sizes to meet requirements.

A. Cane conductor chain. Very accurately pitched and of best refined wrought iron.

B. Link and spindle chain. Chiefly used for continuous bucket coal elevators of large capacity.

C. Steel one and two-bar chain. Ends of center link enlarged to increase pin and sprocket wearing surface.

D. Two and two strap link chain with rollers. For long carriers.

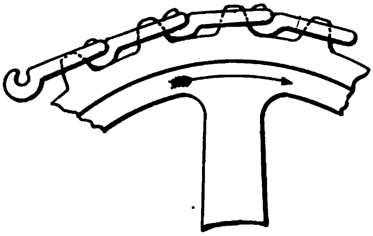
E. Two and two strap link chain with spacers.

F. A strong and durable steel chain for miscellaneous heavy work.

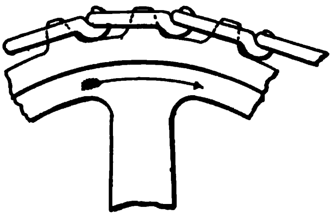
G. Special steel elevator chain for heavy service. Consists of angle iron attachments secured to bushed links. Both bushings and pins are case hardened, and chain is made very wide to give large bearing and sprocket surface.

Sprocket Wheels

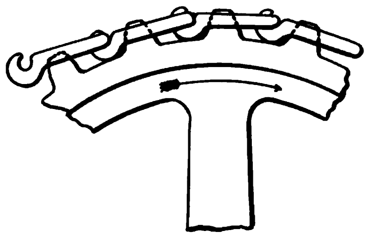
For Ewart Detachable Link-Belting



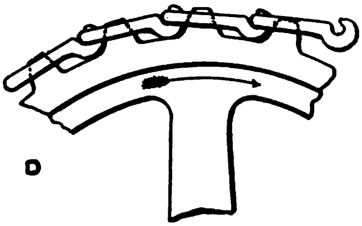
A



C



B



D

LINK-Belting should, wherever possible, run with the Back of the Coupling Hook to the wheel.

Where it is necessary to run a wheel in contact with the Face Side of a belt (the side on which the coupling hook is open), use "Face Wheels."

Cuts *A* and *C* represent wheels which drive the belts, and *B* and *D* wheels which are Driven by the belts. A series of exhaustive experiments based on the conditions of wear on belt and wheels at the various points where they engage and disengage *under strain*, has demonstrated that for Driving Purposes (the transmission of power) the belt should run with *hook end* of link foremost, as in *C* and *D;* while for ordinary Elevator and Conveyor work, the *end-bar* should run foremost as in *A* and *B*. An exception to this rule is the case where elevators are handling fine, gritty material, which would have less tendency to work into the joints of the belt when running with *hook end foremost* (as in *C* and *D*.)

When clutch or other special hubs are wanted, please state whether on Right or Left hand side as you face the the wheel with its Top turning From you.

Where practicable, Link-Belting should be kept well lubricated in the joints with a heavy oil or good grease, which should also be used on the rims and teeth of the wheels at points of contact with the Link-Belting. Use Plumbago or Graphite Grease where the Link-Belting is exposed to gritty dust.

Sprocket Wheels for Ewart Link-Belting

Price List of Ewart Sprocket Wheels

•

Bored and Key-Seated
or Set-Screwed

NOTE.—In some instances several numbers of Link-Belting run on same Wheels, as in case of Nos. 57, 67, and 77. In ordering, state which size is used.

No. 25

Pitch, Diam., Ins.	No. of Teeth.	Price.
1½	5	$0 75
1¾	6	80
2	7	80
2½	8	85
2¾	9	90
3	10	95
3¼	11	1 00
3½	12	1 05
3¾	13	1 10
4	14	1 10
4¼	15	1 15
4¾	16	1 20
5	17	1 25
5½	19	1 35
6	21	1 45
6¼	22	1 50
6½	23	1 55
6¾	24	1 60
7	25	1 65
7½	26	1 70
8	28	1 80
8½	30	1 90
9	32	2 00
9¾	34	2 05
10	35	2 10
10¼	36	2 15
11½	40	2 30
12	42	2 40
12¾	45	2 55
13¾	48	2 70
15	52	2 90
16	56	3 10
17¼	60	3 30
18¼	64	3 50
24	84	5 00

No. 32

Pitch, Diam., Ins.	No. of Teeth.	Price.
2	5	$0 80
2½	6	85
2¾	7	90
3	8	95
3½	9	1 05
3¾	10	1 10
4¼	11	1 15
4½	12	1 20
4¾	13	1 25
5¾	15	1 40
6	16	1 45
8¼	22	1 80
8½	23	1 95
9	24	2 05
9¼	25	2 15
9¾	27	2 30
11¾	32	2 55
12	33	2 60
14	38	2 90
16	44	3 30
16½	45	3 40

Nos. 33 and 34

Pitch, Diam., Ins.	No. of Teeth.	Price.
3	7	$0 95
3½	8	1 05
4	9	1 15
4½	10	1 25
5	11	1 35
5½	12	1 45
6½	15	1 70
7	16	1 80
8½	19	2 00
9¾	22	2 25
12	27	2 60
14¼	32	$3 05
15¼	34	3 20
16	36	3 40
18¼	41	3 90
24	54	5 30

Nos. 35, 45, 55

Pitch, Diam., Ins.	No. of Teeth.	Price.
2½	5	$0 90
3	6	1 00
3¾	7	1 10
4¼	8	1 25
4¾	9	1 35
5¼	10	1 45
5¾	11	1 55
6	12	1 65
7	13	1 75
7¼	14	1 85
8	15	1 95
8½	16	2 05
8¾	17	2 15
9½	18	2 25
10	19	2 35
10½	20	2 45
11½	22	2 70
12	23	2 80
12½	24	2 90
13	25	3 00
14¼	27	3 30
16	31	3 70
16½	32	3 85
18¼	35	4 20
20¼	39	4 65
21¾	42	5 00
22¾	44	$5 25
23½	45	5 40
28	54	7 00
30	58	7 50
36	69	10 50
37¼	72	12 00
42	82	14 00

No. 42

Pitch, Diam., Ins.	No. of Teeth.	Price.
2	5	$1 00
2¾	6	1 05
3	7	1 10
3½	8	1 15
3¾	9	1 20
4¾	11	1 35
5¾	13	1 45
6¼	14	1 60
8	18	1 95
8¼	19	2 00
9½	22	2 25
10½	24	2 40
11¾	27	2 70
14	32	3 20
15½	36	3 50
18	41	4 00
20	46	4 50
24	55	5 75
31	72	9 00
......	......	......
......	......	......
......	......	......
......	......	......
......	......	......

Ewart Sprocket Wheels—continued

No. 51

Pitch, Diam., Ins.	No. of Teeth.	Price.
1¾	5	$0 90
2½	7	1 00
3¼	9	1 15
3½	10	1 20
4	11	1 25
4¼	12	1 30
5	14	1 40
5½	15	1 50
6¼	17	1 60
8	22	2 00
10	27	2 35
10⅛	28	2 45
10¼	29	2 50
12	33	2 75
14	39	3 20
14⅛	40	3 35
16	45	3 70
18¼	50	4 10

No. 52

Pitch, Diam., Ins.	No. of Teeth.	Price.
3	6	$1 00
3½	7	1 10
4	8	1 20
4¼	9	1 30
5	10	1 40
5¼	11	1 50
5½	12	1 55
6	13	1 65
6½	14	1 75
7	15	1 85
7½	16	1 95
8	17	2 05
9	19	2 30
10	21	2 50
11½	24	2 80
12½	26	3 00
13	27	3 15
14½	30	3 50
16½	34	4 00
18	38	4 50
20	42	5 00
22	46	5 45
23¾	49	5 80
24½	51	6 15
26½	55	7 00
30½	64	8 00

Nos. 57, 67, 77

Pitch, Diam., Ins.	No. of Teeth.	Price.
4½	5	$1 35
4¾	6	1 45
5½	7	1 55
6	8	1 70
6¾	9	1 85
7½	10	2 00
8	11	$2 15
8¾	12	2 30
9½	13	2 50
10¼	14	2 70
11	15	2 85
11¾	16	3 05
12½	17	3 25
13¼	18	3 45
14	19	3 65
14¾	20	3 85
15½	21	4 05
16½	22	4 25
17	23	4 50
18¼	25	5 00
19¾	27	5 50
20	28	5 75
22	30	6 25
24¼	33	7 00
26	36	7 75
28	38	8 25
30	41	9 00
32½	44	9 75
36	49	12 00
38½	52	13 50
41½	56	15 50
44½	60	17 00
47½	64	21 00

No. 62

Pitch, Diam., Ins.	No. of Teeth.	Price.
3¾	7	$1 35
4¼	8	1 40
5	9	1 50
5¼	10	1 60
5¾	11	1 70
7¼	14	2 00
8	15	2 10
8¼	16	2 20
9¼	18	2 45
10½	20	2 75
11½	22	3 05
12	23	3 20
14¾	28	3 95
16	30	4 25
18	34	4 85
20	38	5 45
23	43	6 20
24	45	6 50
26	49	7 50
30½	58	9 00
......	......	......
......	......	......
......	......	......

No. 66

Pitch, Diam., Ins.	No. of Teeth.	Price.
5	8	$1 60
7	11	1 85
7½	12	2 00
8½	13	2 25
10¼	16	2 60
12½	19	3 10
16¼	25	4 25

No. 83

ALL DOUBLE TEETH

Pitch, Diam., Ins.	No. of Teeth.	Price.
12	18	$3 50
15½	24	4 25
16	26	4 50
17¾	28	5 25
20	32	6 00
24	38	6 50
28½	44	8 50
30	48	10 00
34	54	12 00
41	64	18 00
50	80	24 00

Nos. 75, 78, 88

Pitch, Diam., Ins.	No. of Teeth.	Price.
4	5	$1 55
5	6	1 65
6	7	1 80
6½	8	2 00
7½	9	2 20
8¼	10	2 40
9	11	2 60
10	12	2 80
10¾	13	3 00
11½	14	3 20
12½	15	3 40
13¼	16	3 60
14¼	17	3 90
16	19	4 40
16½	20	4 65
18½	22	5 15
20	24	5 65
21	25	5 90
22½	27	6 40
23½	28	6 75
24	29	6 90
24¾	30	7 15
28½	34	8 55
29½	35	8 90
30½	37	10 00
32½	39	10 90
33½	40	11 40
35	42	12 10
37	44	12 80
38	46	$14 00
41	49	16 50
41¾	50	16 50
48	58	22 50
64	77	33 50
75	90	9 SEG.
84	99	9 "
91	110	10 "
100	119	10 "

Nos. 85 and 95

Pitch, Diam., Ins.	No. of Teeth.	Price.
7¾	6	$2 60
10	8	3 25
12½	10	4 00
13½	11	4 30
16	13	5 35
17½	14	5 70
20	16	6 90
22½	18	8 10
24	19	8 70
30	24	11 75
33	26	13 50
34	27	14 50
35½	28	15 50
60	47	36 00

No. 103

Pitch, Diam., Ins.	No. of Teeth.	Price.
6	6	$2 40
7	7	2 60
7¾	8	2 80
8¾	9	3 00
9¾	10	3 25
11¾	12	3 85
12½	13	4 20
13½	14	4 55
14½	15	4 90
15½	16	5 25
16½	17	5 60
17½	18	6 00
18	19	6 30
19½	20	6 65
21½	22	7 35
22½	23	7 70
23½	24	8 00
25½	26	9 00
27¼	28	10 00
30	31	11 50
32	33	12 50
37	38	15 25
39¼	40	16 25
41	42	17 50
45	46	21 00

Ewart Sprocket Wheels—continued

No. 103
CONTINUED.

Pitch, Diam., Ins.	No. of Teeth.	Price.
48	49	$23 50
58¾	60	40 00
64½	66	45 00
66	68	50 00
68	7 SEG. 70	40 00
71½	73	57 25
79	81	70 00
96	7 SEG. 98	62 00
105⅜	6 SEG. 108	70 00

Nos. 105 and 107

Pitch, Diam., Ins.	No. of Teeth.	Price.
11¾	6	$4 50
15¾	8	4 90
19½	10	6 25
19¾	D'BL TEETH 20	7 00
23	12	7 75
23½	D'BL TEETH 24	8 75
25¼	13	$9 75
27½	14	10 75
31	16	13 00
36¾	19	16 00
48½	25	25 50

No. 108

Pitch, Diam., Ins.	No. of Teeth.	Price.
9½	6	$4 20
12	8	4 50
13½	9	5 00
16½	11	6 00
18	12	6 50
20	14	7 50
24	16	9 00
30	20	12 50
36	24	15 50
42	28	20 00
48	32	25 00

No. 114

Pitch, Diam., Ins.	No. of Teeth.	Price.
7	7	$3 00
8	8	3 60
10	10	4 40
12¼	12	$5 25
13¼	13	5 60
14¼	14	6 00
16½	16	6 80
18	17	7 90
18½	18	8 25
19½	19	9 00
23	22	11 00
24	23	11 50
24½	24	12 00
26¾	26	13 50
31	30	15 00
33	32	17 00
35	34	19 00
36	35	20 00
42	41	25 00
48½	47	30 00

No. 122

Pitch, Diam., Ins.	No. of Teeth.	Price.
16	8	$8 00
17½	9	9 00
19	10	10 00
21½	11	11 25
23	12	12 50
29½	15	17 00
42½	22	25 00

No. 124

Pitch, Diam., Ins,	No. of Teeth.	Price.
9½	7	$4 10
10¾	8	4 50
11½	9	4 75
12½	10	5 10
14½	11	5 60
15¼	12	6 25
16½	13	7 00
18¾	15	9 00
21½	17	11 00
24	19	13 00
26	20	14 00
31	24	16 50
35	27	19 00
36	28	20 00
44	34	26 00
48	38	35 00
62	48	50 00
72	56	65 00

No. 146

Pitch, Diam., Ins,	No. of Teeth.	Price.
16	8	$8 00
18	9	9 00
20	10	10 00
32	16	18 00
36	18	20 00

Special Ewart Wheels

Idlers

Chain Number.	Diameter, Inches.	No. of Teeth.	Price.	Chain Number.	Diameter, Inches.	No. of Teeth.	Price.
25	6	21	$1 45	75, 78, 88	10	12	$2 80
25	8	28	1 80	75, 78, 88	17	20	4 75
33	6¾	15	1 70	85, 95	10	8	3 25
35, 45, 55	4	7	1 25	85, 95	12½	10	4 00
35, 45, 55	4¼	8	1 30	85, 95	13½	11	4 30
42	3¾	9	1 20	103	7¾	7	2 60
52	5	10	1 50	103	9¼	9	3 00
52	8¼	17	2 05	103	10¼	10	3 25
57, 67, 77	8¼	11	2 15	103	13	13	4 20
57, 67, 77	10	13	2 50	103	15½	16	5 25
75, 78, 88	6½	8	2 00	108	9½	6	3 75
75, 78, 88	8¾	10	2 40	108	12	8	4 50

Special Ewart Wheels—continued

Face Wheels

(For explanation, see page 173.)

Chain Number.	Diameter, Inches.	No. of Teeth.	Price.	Chain Number.	Diameter, Inches.	No. of Teeth.	Price.
25	3¼	11	$1 05	57, 67, 77	9¾	13	$2 60
25	3½	12	1 10	57, 67, 77	12½	17	3 35
35, 45, 55	3½	6	1 10	57, 67, 77	14¼	19	3 75
35, 45, 55	6½	12	1 75	57, 67, 77	15¾	21	4 20
35, 45, 55	8½	16	2 15	57, 67, 77	19	25	5 25
35, 45, 55	10¼	19	2 45	57, 67, 77	24½	33	7 75
35, 45, 55	12¼	23	2 90	57, 67, 77	36	49	12 50
35, 45, 55	14¼	27	3 40	62	4¾	8	1 50
35, 45, 55	16¼	31	3 80	62	5¾	11	1 80
42	6	13	1 55	62	8½	16	2 30
42	8	18	2 00	62	10	18	2 55
42	9½	22	2 35	62	12½	23	3 30
42	18	41	4 10	62	14¾	28	4 10
51	2½	7	1 05	75, 78, 88	5	6	1 75
51	6¼	17	1 70	75, 78, 88	8½	10	2 50
51	9½	25	2 40	75, 78, 88	10¼	12	2 90
52	4¾	9	1 40	75, 78, 88	10¾	13	3 10
52	5	10	1 50	75, 78, 88	11¾	14	3 30
52	6¼	13	1 75	75, 78, 88	12¾	15	3 50
52	8¼	17	2 15	75, 78, 88	14¼	17	4 00
52	10	21	2 60	75, 78, 88	17	20	4 80
52	13	27	3 25	75, 78, 88	21	25	6 10
52	14¾	30	3 60	75, 78, 88	25	30	7 30
52	16½	34	4 10	75, 78, 88	29½	35	9 40
52	18	38	4 60	75, 78, 88	37	44	13 00
52	24	49	5 90	75, 78, 88	38	46	14 20
57, 67, 77	5½	7	1 55	103	13½	14	4 65
57, 67, 77	6¾	9	1 95	103	16½	17	5 75
57, 67, 77	7½	10	2 10	103	25½	26	9 40
57, 67, 77	8¼	11	2 25	103	37	38	15 50

Live Roll Wheels

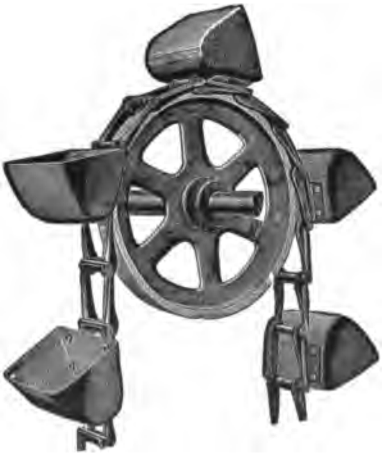
Chain Number.	Diameter, Inches.	No. of Teeth.	Price.
57, 67, 77	6	8	$2 10
57, 67, 77	6¾	9	2 15
57, 67, 77	7½	10	2 30
57, 67, 77	8	11	2 40
75, 78, 88	7½	9	2 45

Gap Wheels

Chain Number.	Diameter, Inches.	No. of Gaps.	Price.
33	16	6	$3 60
35, 45, 55	8½	4	2 20
42	8	3	2 10
57, 67, 77	14¾	4	4 00
57, 67, 77	21	4	6 00
75, 78, 88	16½	4	4 90
75, 78, 88	20	4	5 70
85, 95	20	4	7 10
108	22¾	3	8 75

Additional Price to be Added to the List Price for Split Sprocket Wheels

Diameter.	No. of Link-Belt.	Price.	Diameter.	No. of Link-Belt.	Price.
6 to 12	25 to 52	$1 70	24¼ to 36	32 to 52	$2 90
	57 to 77	1 85		57 to 77	3 20
	78 to 95	2 00		78 to 95	3 60
	103 to 160	2 20		103 to 160	4 00
12¼ to 24	25 to 52	$2 35	36¼ to 60	57 to 77	$4 60
	57 to 77	2 50		78 to 95	6 00
	78 to 95	2 65		103 to 160	7 80
	103 to 160	2 80			
			Above 60	78 to 160	$12 00

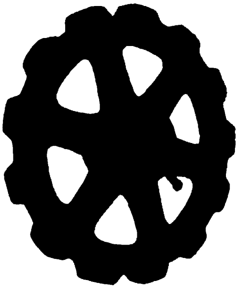


Ewart Traction Wheels

TRACTION Wheels have turned rims, and are very satisfactory for use in elevators handling heavy or gritty material, the grip being ample to do all the work that the Link-Belting and Buckets should be called upon to do; and at the same time, in the event of a serious obstruction, the chain may slip. Elevators provided with these wheels will run smoother and last longer in gritty material than they would if sprocket wheels were used.

Nos. 85 and 95		No. 103		No. 114		No. 124	
Pitch. Diameter, Inches.	List, Finished.	Pitch, Diameter, Inches.	List, Finished.	Pitch, Diameter, Inches.	List, Finished.	Pitch, Diameter, Inches.	List, Finished.
13	$6 50	18½	$9 00	16½	$9 00	16½	$11 00
14	7 60	20	11 00	18	11 00	18¾	13 00
15¾	8 25	30	20 00	24	16 50	20	16 00
16½	8 65	**No. 108**		**No. 122**		21½	17 00
17¾	9 00			17¼	$11 00	24	18 00
19	9 80			19¼	12 90	31	24 00
20½	11 10	17	$9 80	21¾	15 00	**No. 160**	
24	13 40	18½	10 90	23¾	16 25	30	$25 00
25	14 40	22¾	13 00	29¼	22 60	40	40 00
30¾	20 20	24½	15 50	36½	31 00	....	.....
35½	22 20	30¼	20 50	....	.....	....	.....
.....	.....	36¾	26 50				

Sprocket Wheels for Ley Bushed Chains



No. 823

Pitch, Diam., Inches.	Teeth.	Price.
10½	8	$5 50
12½	10	6 50
14½	11	7 00
15¼	12	7 50
18¾	15	9 75
21½	17	11 00
24	19	13 00
26	20	14 00
31	24	17 50
36	28	22 50
48	38	35 00

No. 825

Pitch, Diam., Inches.	Teeth.	Price.
12	9	$6 00
15½	12	8 00
17¾	14	9 50
20½	16	11 50
23	18	13 50
30½	24	19 50
36	28	23 50
39¼	31	27 50

No. 926

Pitch, Diam., Inches.	Teeth.	Price.
11½	9	$6 75
12½	10	7 25
14½	11	7 75
15¼	12	8 25
16½	13	9 00
18¾	15	10 75
21½	17	12 00
24	19	14 25
26	20	15 25
31	24	19 25
36	28	24 00
44	34	32 50
48	38	38 50
62	48	55 00
72	56	72 50

No. 830

Pitch, Diam., Inches.	Teeth.	Price.
15¾	8	$8 00
20	10	10 50
23	12	13 50
30½	16	19 00
35½	18	24 00
42¼	22	30 00
69	18	65 00
....	....	.....
....	....	.....
....	....	.....
....	....	.....
....	....	.....
....	....	.....

No. 831

Pitch, Diam., Inches.	Teeth.	Price.
23	6	$13 50
34½	9	23 00

No. 843

Pitch, Diam., Inches.	Teeth.	Price.
12	6	$7 00
15¾	8	8 75
23	12	14 50
25	13	16 00
29	15	19 00
35	18	25 00

No. 844

Pitch, Diam., Inches.	Teeth.	Price.
19½	10	$14 00
23	12	15 50
29	15	21 00
35	18	27 50
33½	19	30 00

No. 845

Pitch, Diam., Inches.	Teeth.	Price.
29¼	10	$25 00
35	12	35 00
46½	16	50 00

No. 855

Pitch, Diam., Inches.	Teeth.	Price.
20½	5	$20 00
35	9	40 00
....	....	.....
....	....	.....

Wheels for Closed End Pin Chains

No. 477

Pitch, Diam., Ins.	No. of Teeth.	List.
6	8	$1 70
8	11	2 15
9½	13	2 50
11¾	16	3 05
12½	17	3 25
14	19	3 65
16½	22	4 25
18¼	25	5 00
22	30	6 25
24¼	33	7 00
26	36	7 75
28	38	8 25
30	41	9 00
36	49	12 00

No. 488

Pitch, Diam., Ins.	No. of Teeth.	List.
6½	8	$2 00
7½	9	2 20
8¼	10	2 40
9	11	2 60
10	12	2 80
10¾	13	3 00
11½	14	3 20
16½	20	4 65
18½	22	5 15
20	24	5 65
22½	27	6 40
24¾	30	7 15
33½	40	11 40
37	44	12 80

No. 710

Pitch, Diam., Ins.	No. of Teeth.	List.
9½	6	$4 20
12	8	4 50
13½	9	5 00
16½	11	6 00
18	12	6 50
20	14	7 50
24	16	9 00
30	20	12 50
36	24	15 50
48	32	25 00

No. 744

Pitch, Diam., Ins.	No. of Teeth.	List.
23	12	$15 50
29	15	21 00
35	18	27 50

No. 730

Pitch, Diam., Ins.	No. of Teeth.	List.
14½	Idler 7	$7 00
17½	9	8 00
19½	10	8 50
23	12	11 00
30¾	16	17 50
36½	19	22 00
42½	22	28 00
49¾	26	38 00
54	28	44 00
15¾	8 Idler	7 50

No. 745

Pitch, Diam., Ins.	No. of Teeth.	List.
24	8	$20 00
35	12	35 00
40½	14	45 00

Rolling Chain Sprocket Wheels

No. 1112

Diam., Ins.	Teeth.	Price.
6½	5	$3 50
8½	7	4 00
9¾	8	4 75
11	9	5 00
12¼	10	5 50
13¼	11	6 60
14½	12	7 00
16½	14	7 70
18½	15	8 25
19	16	9 00
20	17	9 50
22¾	19	11 50
24	20	12 00
25	21	12 50
28¼	24	13 00
29¾	25	14 00
31	26	15 00
35½	30	20 00
44	37	24 00
48	40	28 00
60¾	51	38 50

No. 1113

Diam., Ins.	Teeth.	Price.
8¼	6	$4 50
10½	8	5 50
12	9	6 50
13¼	10	7 00
14½	11	7 50
15¾	12	8 50
17½	13	9 00
18¼	14	10 50
19½	15	11 50
21¼	16	12 00
23¾	18	14 00
25	19	15 00
26¼	20	16 00
29¼	23	17 00
31¼	24	18 00
36½	28	22 00
38	30	24 00
40	31	25 00
42¾	33	26 00
44¾	35	30 00
48	37	35 00
51	40	40 00

No. 1124

Diam., Ins.	Teeth.	Price.
6¾	5	$2 20
9¼	7	3 25
11½	9	4 00
19½	15	7 00
24½	19	8 00
29¾	23	10 00
34¾	27	14 00
40	31	18 00
47½	37	26 00

No. 1131.

Diam., Ins.	Teeth.	Price.
25	13	$20 00
30¾	16	25 00
37	19	30 00
53½	28	50 00

No. 1130

Diam., Ins.	Teeth.	Price.
10¼	5	$6 00
12	6	7 00
14	7	9 00
17¾	9	10 50
19½	10	12 00
23¾	12	14 00
25½	13	16 00
27¼	14	17 00
29½	15	18 00
30¾	16	19 00
35	18	21 00
37	19	22 50
48½	25	35 00

Dodge Chain Wheels

SPROCKET IDLER

REMOVABLE TOOTH SPROCKET WHEEL

TRACTION WHEEL

PLAIN SPROCKET WHEEL

Price List of Sprocket Wheels for Dodge Chain

Size of Chain, Inches.	Diameter, Inches.	No. of Teeth.	Plain Wheel.	Removable Tooth Wheel.
½ and ⅝	16½	4	$10 00	......
"	20	5	12 50	......
"	24	6	15 00	$25 00
"	30	8	25 00	45 00
"	38	10	30 00	50 00
"	42	11	35 00	55 00
"	46	12	.....	60 00
"	50	13	45 00	.....
"	95	18	145 00	Special Wheel
¾	30	6	32 00	50 00
"	37	7	.....	57 00
"	41	8	43 00	65 00
"	47	9	50 00	.....
"	50	10	.....	90 00
"	66	13	Special Wheel	80 00
⅞	46½	6	.....	100 00

Price List of Traction Wheels

Diameter	24 in.	30 in.	37 in.	40 in.	42 in.	49 in.
Chain, ½ and ⅝ inch	$10 00	$20 00	.....	.....	$26 00	.....
" ¾ in.	.....	25 00	$30 00	$35 00	.....	.....
" ⅞ in.	.....	.....	.....	.....	.....	$40 00

Price List of Sprocket Idlers

Chain, ½ and ⅝ inch; diameter, 20 inches	Price	$5 75
Chain, ¾ inch; diameter, 24 inches	"	11 00

Extra Teeth, with Bolts

½ inch, 65c. ⅝ inch, 65c. ¾ inch, $1.10.

Monobar Sprocket Wheels

No.	Pitch, Diameter, Inches.	No. of Teeth.	Price.	
			Plain.	Removable Teeth.
612	31½	8	......	......
618	36	6	....	......
618	47	8	......	......
824, 1024	62¾	8	......	......
1224	62¾	8	......	......
1636	94	8	......	......

Sprocket Wheels for Steel Link Chains

6-Inch Pitch Ice Chain Wheels

Pitch, Diameter, Inches.	No. of Teeth.	Remarks.	Price.
15¾	4	Solid Teeth	$7 50
23	6	Solid Teeth	10 00
23	6	Removable Teeth	30 00
23	..	Single Flanged Idler without Teeth	10 00
31	8	Solid Teeth	16 00
34½	9	Solid Teeth	19 00
34¼	9	Removable Teeth	43 00
38¼	10	Removable Teeth	52 00
42¼	11	Solid Teeth	26 50
42¼	11	Removable Teeth	61 50
46½	12	Solid Teeth Special Plate Center	34 50
53½	14	Solid Teeth	40 00
61¼	16	Solid Teeth	50 00

3 9-32-Inch Steel Chain (Hog Scraper) Wheels

Pitch, Diameter, Inches.	No. of Teeth.	Remarks.	Price.
8½	4	Solid Teeth	$4 00
10½	5	Solid Teeth	4 50
14¾	7	Solid Teeth	7 50
23	11	Solid Teeth	10 00
12¾	6	Removable Teeth	14 00

6-Inch Block Chain Wheels

Pitch, Diam., Inches.	No. of Teeth.	Price.
20	6	$12 50
29	9	18 50
..	..	......
..	..	......

Wheels for Steel Refuse Chains

Chain Inches.	Pitch, Diam., Inches.	Price.
6 x 7	17½	$18 00
6 x 12	17½	20 00
8 x 8	24	25 00
8 x 12	24	30 00

Sprocket Wheels—continued

No. 500 Transfer Wheels			**No. 550 Wheels**			**No. 555 Wheels**		
Pitch, Diameter, Inches.	No. of Teeth.	Price.	Pitch, Diameter, Inches.	No. of Teeth.	Price.	Pitch, Diameter, Inches.	No. of Teeth.	Price.
8	12	$3 25	10¼	5	$6 00	21	8	$13 50
12	18	4 50	12	6	7 00	31	12	21 00
16	24	6 00	17	9	9 75	38½	15	28 00
..	..	....	21	11	12 00	....	..	......

No. 1260 Chain (Cane Carrier) Wheels

18¼ inch Diameter	9 Teeth	$12 50
26 inch Diameter	13 Teeth	17 00

Giant Chain Sprocket Wheels

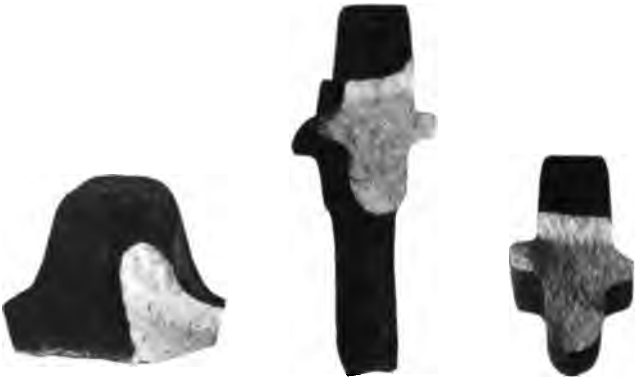
No. 600			**Nos. 1050 and 1075**			**No. 1200**			**No. 1200 with No. 600 Coupler**		
Pitch, Diam., Inches.	No. of Teeth	Price.	Pitch, Diam., Inches.	No. of Teeth	Price.	Pitch, Diam., Inches.	No. of Teeth	Price.	Pitch, Diam., Inches.	No. of Teeth	Price.
9	5	$4 90	17	5	$12 00	20	5	$14 00	17	6	$11 50
12	6	6 25	20	6	15 00	24	6	16 00	23	8	14 00
16	8	9 00	20	6	Roller 15 00	31	8	21 50	26	9	16 50
18	10	10 60				38½	10	27 50	37	13	24 00
24½	13	14 50	22¾	7	18 00	42	11	29 50	..	..	.....
36	19	23 00	22¾	7	Roller 10 00	....	..	.....	..	..	.....
43	22	30 00				....	..	.....	..	..	.....
48	25	36 00	25	8	20 00	....	..	.....	..	..	.....
....	..	.....	36	11	28 00	....	..	.....	..	..	.....
....	..	.....	48	15	39 00	....	..	.....	..	..	.....
....	..	.....	64	20	72 00	....	..	.....	..	..	.....

Wheels for Howe Chain

No. 1 or No. 2, 24 Ins. Diameter	12 Teeth	$16 00
No. 4 Idler, 24 Ins. Diameter	6 Teeth	10 00

Tubular Chain Wheels

No. 625			**No. 1225**			**No. 1250**		
Pitch, Diameter, Inches.	No. of Teeth.	Price.	Pitch. Diameter, Inches.	No. of Teeth.	Price.	Pitch, Diameter, Inches.	No. of Teeth.	Price.
9	5	$4 90	16½	4	$12 00	19½	5	$14 00
12	6	6 25	20	5	14 00	24	6	16 00
15¼	8	9 00	24	6	16 00	30¾	8	21 50
17¼	9	9 50	30¾	4 gaps	20 00	38¼	10	27 50
18	10	10 60	31	8	21 50			
24½	13	14 50	38½	10	27 50	Traction Wheels		
30	16	20 00	42	11	29 50			
36	19	23 00	....	..	......			
43	22	30 00	....	..	......	23¼	....	....
48	25	36 00	....	..	......	30¾	....	....



NOTE DEPTH OF CHILL PRODUCED BY THE NEW HARDENING PROCESS

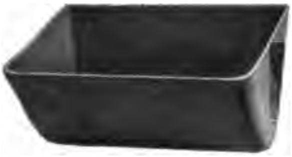
Chilled or Case Hardened Sprocket Wheels

FOR especially severe service, we are prepared to furnish Sprocket Wheels treated by a new process which hardens the teeth and rims to such an extent, that they become practically immune to frictional wear, and which gives them a smooth, uniform, and close grained surface, which the links engage without cutting.

Prices on Chilled or Case Hardened Sprocket Wheels will be quoted on application.

Malleable Iron Buckets

Of approved pattern and weight. These buckets are seamless, strong, and smooth, their corners being rounded, insuring free and clean delivery of material. They are made in four styles as shown, A, AA, B, and C, and of the sizes given. They are especially desirable for handling coarse and gritty materials, such as ore, broken stone, coal, cement, phosphate, etc., being tougher to stand wear and hard knocks than the so-called steel buckets in the market, which have to be made of soft grade of steel in order to be worked into shape. No charge is made for punching. In ordering, state whether buckets are to be punched for flat belt or link-belt, and if for latter, give size and number of strands of belt and style of attachment.

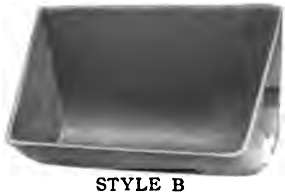


STYLE A

THE A BUCKET IS THE STANDARD FORM AND THE MOST GENERALLY USED.

Style A

Length, Inches.	Width, Inches.	Depth, Inches.	Capacity, Cubic Inches.	Price.
4	2¾	2½	13	$0 20
5	3½	3	25	35
6	4	3½	50	50
7	4½	4	60	65
8	5	4	108	75
10	6	5	160	1 00
11	6	5	230	1 20
12	7	5½	300	1 65
14	7	5½	350	2 35
14	8	6	480	2 50
16	8	7	650	3 65
18	8	7	1175	4 50
18	10	7	1175	5 30

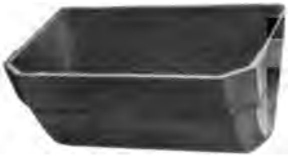


STYLE B

THE SHAPE OF THE B BUCKET IS FAVORABLE FOR USE IN INCLINED ELEVATORS AND HANDLING COARSELY BROKEN MATERIALS.

Style B

Length, Inches.	Width, Inches.	Depth, Inches.	Capacity, Cubic Inches.	Price.
4	1½	1	4	$0 15
7	3½	2½		55
8	3½	2½	48	65
10	4	3	60	85
12	5½	4	135	1 20
16	6½	5	480	2 95

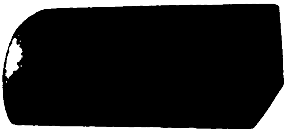


STYLE AA

AA HAS HEAVY REINFORCED FRONT EDGES AND CORNERS, WHICH INCREASE THE LIFE OF THE BUCKET IN HANDLING MATERIAL OF A SILICEOUS NATURE.

Style AA

Length, Inches.	Width, Inches.	Depth, Inches.	Capacity, Cubic Inches.	Price.
6	4	3½	50	$0 55
8	5	4	108	1 10
10	5	4½	140	1 40
10	6	5	160	1 40
11	6	5	230	1 65
12	6	5	250	2 20
12	7	5½	300	2 30
15	7	5½	375	3 50
16	7	5½	400	3 85



STYLE C

THE C IS DESIGNED FOR HANDLING CLAY, SUGAR, FINELY PULVERIZED ORES, AND SUCH MATERIALS AS WOULD STICK OR PACK IN THE OTHER TYPES OF BUCKETS.

Style C

Length, Inches.	Width, Inches.	Depth, Inches.	Capacity, Cubic Inches.	Price.
6	4½	4	63	$0 50
7	4½	4	73	55
8	4½	4	84	60
10	5	4	120	85
12	5	4	144	95
14	7	5½	332	2 05
16	7	5½	380	2 25

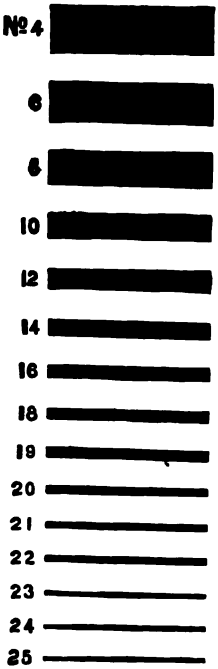
In addition to the above standard sizes, we have a large number of patterns of special Malleable Buckets, and shall be pleased to figure upon any size or style other than those listed, if wanted in quantity.

"Salem" Buckets

"SALEM" BUCKET

ARE light, strong, made entirely of steel, and well adapted to handle smooth, finely divided loose material, as grain, etc., etc.

Revised Price List



GAUGES OF STEEL used on Salem Buckets

Capacity: bushels per hour 200 ft. per min. 12 ins. apart.	Size of Bucket.		Suitable for ordinary Mill and Elevator Work.		Ear Corn and Similar Heavy Substances.	
	Width.	Projection.	Gauge of Steel used.	Price.	Gauge of Steel used.	Price.
21	2	x 2 in.	No. 25	$ 04	No. 18	$ 16
40	2½	x 2¼ "	" 24	05	" 18	18
59	3	x 2½ "	" 24	06	" 18	19
69	3½	x 2½ "	" 24	07	" 18	20
87	3	x 3 "	" 23	09	" 16	28
102	3½	x 3 "	" 23	10	" 16	29
116	4	x 3 "	" 23	11	" 16	30
131	4½	x 3 "	" 23	12	" 16	31
159	4	x 3½ "	" 22	12	" 16	33
179	4½	x 3½ "	" 22	13	" 16	34
199	5	x 3½ "	" 22	14	" 16	35
229	5	x 4 "	" 22	18	" 16	39
251	5½	x 4 "	" 21	19	" 16	40
274	6	x 4 "	" 21	20	" 16	41
500	7	x 4½ "	" 20	30	" 16	49
670	8	x 5 "	" 19	41	" 16	59
754	9	x 5 "	" 19	43	" 16	63
973	10	x 5½ "	" 19	54	" 16	76
1220	10	x 6 "	" 18	62	" 16	81
1342	11	x 6 "	" 18	65	" 16	85
1464	12	x 6 "	" 18	68	" 16	89
1708	14	x 6 "	" 18	74	" 16	97
1952	16	x 6 "	" 18	81	" 16	1 05
2196	18	x 6 "	" 18	89	" 16	1 13
2440	20	x 6 "	" 18	95	" 16	1 21
1590	10	x 7 "	" 18	73	" 16	1 01
1749	11	x 7 "	" 18	76	" 16	1 05
1908	12	x 7 "	" 18	80	" 16	1 09
2226	14	x 7 "	" 18	88	" 16	1 17
2544	16	x 7 "	" 18	96	" 16	1 25
2862	18	x 7 "	" 18	1 04	" 16	1 33
3180	20	x 7 "	" 18	1 12	" 16	1 41
3184	16	x 8 "	" 18	1 14	" 16	1 41
3582	18	x 8 "	" 18	1 22	" 16	1 51
3980	20	x 8 "	" 18	1 30	" 16	1 61
4378	22	x 8 "	" 18	1 38	" 16	1 71
4776	24	x 8 "	" 18	1 46	" 16	1 81

Malleable End Buckets

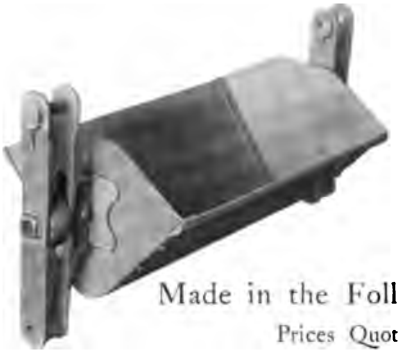
MALLEABLE END BUCKET

HAVE bodies made of a single sheet of steel, securely riveted to heavy malleable iron ends, which protect the body and strengthen the corners. These Buckets have high backs and greater width than the ordinary forms, giving them large carrying capacity. They are especially adapted to the G attachments as employed in Centrally Hung and Perfect Discharge Elevators.

Price List

Size	12x7	14x7	16x7	18x7	20x7	12x8	14x8	16x8	18x8	20x8	24x8
Capacity in cubic inches	340	400	460	510	560	430	500	575	630	720	790
Capacity in quarts	5	6	7	7⅔	8⅓	6½	7½	8½	9¾	10½	12
No. of metal in body	18	18	16	16	16	16	16	16	14	14	14
Price	$1 60	1 65	1 75	1 85	1 95	1 90	2 00	2 10	2 25	2 40	2 70

Size	30x8	36x8	12x9	14x9	16x9	18x9	20x9	24x9	30x9	36x9	....
Capacity in cubic inches	1080	1200	500	585	670	750	830	1000	1250	1500	....
Capacity in quarts	16	17¾	7½	8⅔	10	11	12⅓	15	18	22¼	....
No. of metal in body	14	14	16	16	16	14	14	14	14	14	....
Price	$3 10	3 50	2 30	2 40	2 50	2 70	2 85	3 10	3 40	3 70	....



Gravity-Discharge Elevator-Conveyor Buckets

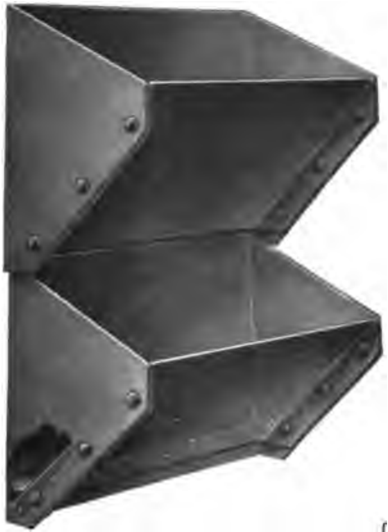
With or without reinforced edges or chain attachments, riveted on, as shown.

Made in the Following Standard Sizes

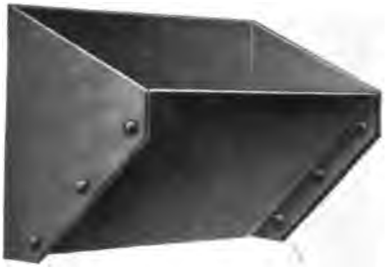
Prices Quoted on Application

Length, Inches.	Width, Inches.	Depth, Inches.	Thickness of Steel.	Length, Inches.	Width, Inches.	Depth, Inches.	Thickness of Steel.
12	12	6	No. 12	30	20	10	$\frac{3}{16}$ in.
16	12	6	" 10	36	20	10	$\frac{3}{16}$ "
16	15	8	" 10	30	24	12	To suit conditions.
20	15	8	" 10	36	24	12	
24	15	8	" 10	42	24	12	
20	20	10	$\frac{3}{16}$ in.	48	24	12	
24	20	10	$\frac{3}{16}$ "	..	..	..	......

Continuous and Overlapping Steel Buckets



STANDARD OVERLAPPING STEEL BUCKETS
WITH CURVED INSIDE BOTTOMS.



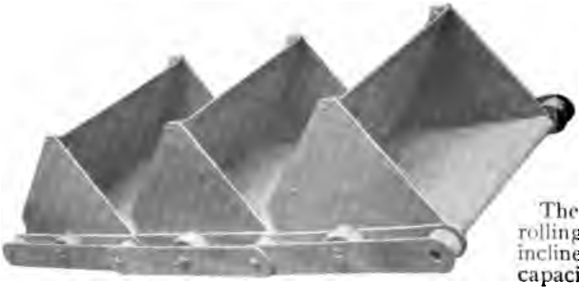
STANDARD CONTINUOUS STEEL BUCKETS
WITH ANGULAR BOTTOMS.

Continuous and Overlapping Steel Buckets for Single Strand Vertical Elevators as here shown are made in the following sizes:

Prices quoted on application.

Width, Inches.	Depth at Back, Inches.	Projection, Inches.	Thickness of Steel. No.	Width, Inches	Depth at Back, Inches.	Projection. Inches.	Thickness of Steel. No.
8	7¾	5	14	14	9¼	6	12
10	7¾	5	14	14	11¾	8	10
10	9¼	6	12	16	11¾	8	10
12	9¼	6	12	16	11¾	9	10
12	11¾	8	10	..	....		..

Continuous Buckets for Double Strand Elevators



Being secured to the chains on the pitch line they preserve a close formation at all times. This affords all the advantages of an overlapping bucket, with none of the disadvantages sometimes attending the overlapping feature.

They are used with 18-inch pitch rolling chains, and are suitable for inclined or vertical elevators of large capacities and severe service.

Made in the Following Standard Sizes

Width, Inches.	Depth at Back, Inches.	Projection, Inches.	Thickness of Steel.	Width, Inches.	Depth at Back, Inches.	Projection, Inches.	Thickness of Steel.
16	18	12	To Suit Conditions	30	18	12	To Suit Conditions.
20	18	12		36	18	12	
24	18	12					

Miscellaneous Buckets

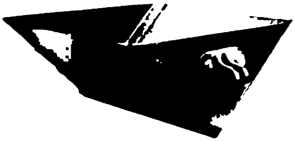
OWING to the limitations of this book we can only list or illustrate such types of buckets as are most commonly used. We are prepared to furnish buckets of any standard make or special buckets to suit any work or conditions.

TIN AND IRON MILL BUCKETS

BUCKETS OF THIS TYPE ARE ALSO MADE ENTIRELY OF STEEL FOR MORE SEVERE SERVICE IN HANDLING LOOSE GRAIN OR EAR CORN.

STONE ELEVATOR BUCKETS

FOR ANY ANGLE OF ELEVATION, AND IN ANY REQUIRED STYLE OR CAPACITY.



SPECIAL BUCKETS FOR GRAVITY DISCHARGE ELEVATOR-CONVEYORS.

ARE MADE IN A VARIETY OF SHAPES TO SUIT CONDITIONS.

STRAIGHT BACK BUCKETS

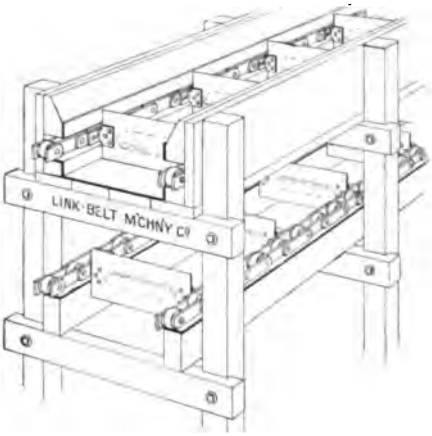
CENTRALLY HUNG.

Centrifugal Discharge Elevators

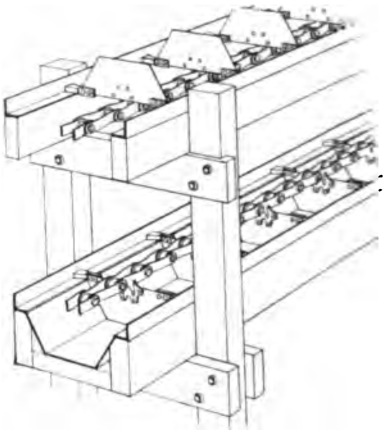
Are Usually Speeded as Follows

Head Wheel, Pitch Diameter, Inches.	Revolutions Per Minute.	Feet Per Minute.
15	47	187
18	45	210
21	43	236
24	41	256
27	39	275
30	38	298
33	36	310
36	35	330
40	34	356
48	33	415

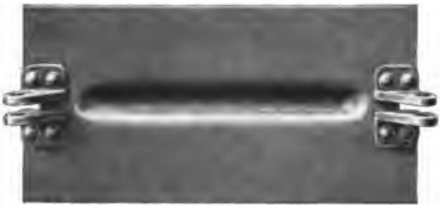
Steel Conveyor Flights and Trough Lining



DOUBLE STRAND ROLLING CHAIN CONVEYORS
WITH FLIGHTS CENTRALLY HUNG.

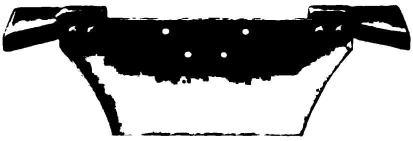


SINGLE STRAND CONVEYOR
WITH FLIGHTS HAVING CAST IRON WEARING SHOES.



CENTRALLY HUNG FLIGHT
FOR DOUBLE STRAND CONVEYORS.
SUITABLE FOR RIGID OR HINGED CHAIN ATTACHMENTS. LARGE SIZES ARE EMBOSSED, AS SHOWN, TO INCREASE STIFFNESS.

STRAIGHT FLIGHT
WITH CAST IRON WEARING SHOES, FOR SINGLE STRAND CONVEYOR.



CURVED FLIGHT
WITH CAST IRON WEARING SHOES, FOR SINGLE STRAND CONVEYOR

Steel Flights as shown and Trough Lining to correspond are made in the following standard sizes:

Centrally Hung Flights

Length, Inches.	Width, Inches.	Thickness, Inches.
16	8	$\frac{3}{16}$
20	10	$\frac{1}{4}$
24	10	$\frac{1}{4}$
30	12	$\frac{1}{4}$
36	12	$\frac{1}{4}$

Straight Flights

With Cast Iron Wearing Shoes

Length, Inches.	Width, Inches.	Thickness. Inches.
10	4	$\frac{3}{16}$
12	5	$\frac{1}{4}$
15	6	$\frac{1}{4}$
18	6	$\frac{5}{16}$

Curved Flights

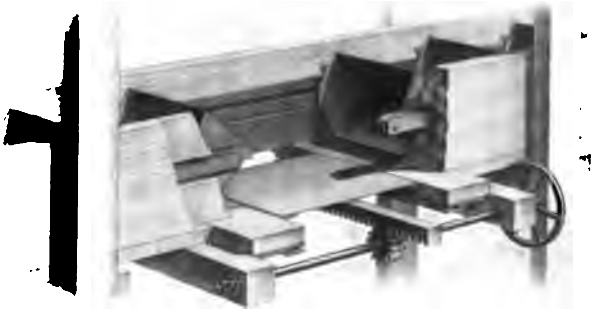
With Cast Iron Wearing Shoes

Length, Inches.	Width, Inches	Thickness.
10	4	No. 10 Gauge
12	5	No. 8 Gauge
15	6	No. 8 Gauge
18	6	$\frac{3}{16}$ in.

Prices quoted on application.

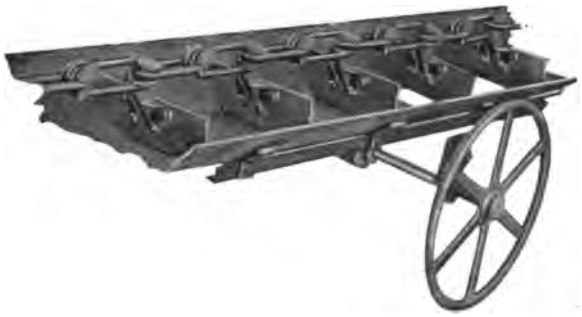
Discharge Gates for Conveyors

THOSE who have experienced the difficulties incident to the operation of discharge gates of the ordinary types will recognize the advantages of these improved forms, which are the best that have been devised for their respective purposes.



LINK-BELT DISCHARGE GATE, "WABASH" TYPE

THIS GATE CAN, BY SUITABLE MODIFICATIONS, BE EMPLOYED WITH PRACTICALLY ANY TYPE OF PUSH CONVEYOR. IT IS ESPECIALLY ADAPTED FOR DOUBLE STRAND CONVEYORS AS DESCRIBED ON OPPOSITE PAGE, AND FOR THE LINK-BELT GRAVITY-DISCHARGE ELEVATOR-CONVEYOR AS SHOWN ABOVE.



LINK-BELT DISCHARGE GATES

SUITABLE FOR SMALL COAL AND USUALLY EMPLOYED WITH SINGLE STRAND CONVEYORS SHOWN ON OPPOSITE PAGE.

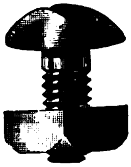
Bolts for Elevators and Conveyors

Used for Standard Steel Flights and Buckets, on Ewart, Ley, Dodge, and Monobar Chains

SIZE OF BOLTS.	ATTACHMENT LINKS.
3/16″ x 1/2″—	No. 32 A_{12}, A_{19}, E_1, K_3, K_6 No. 33 A_{13}, A_{14}, K_5, K_6, S_1 No. 34 A_1, E_1 No. 35 C_1, E_1, K_1, S_1 No. 42 K_1, K_3, K_6, S_1, S_3 No. 45 A_2, C_1, E_1, F_2, G_1, K_1, K_2, K_6, S_1, S_4, S_6 No. 51 A_1, K_1 No. 52 E_1, F_2, G_1, K_1 No. 55 A_1, F_2, K_1, S_1 No. 57 K_{22}, S_2 No. 62 K_1, K_3 No. 67 S_2 No. 77 S_2
1/4″ x 5/8″—	No. 33 A_6 No. 34 C_1 No. 35 A_1, K_5 No. 42 A_1, A_{36}, C_1, K_5 No. 45 A_1 No. 52 K_6 No. 57 A_1, E_1, F_2, K_1 No. 62 A_1 No. 67 A_1, A_7, A_{11}, E_1, F_2, FF, K_1 No. 75 E_1 No. 77 A_1, A_{33}, E_1, G_1, G_6, K_1 No. 78 G_1, G_6, K_1, S_2 No. 83 E_1 No. 88 G_1, G_6, S_2
1/4″ x 3/4″—	No. 103 A_{11}, G_6
5/16″ x 3/4″	No. 42 A_6 No. 77 F_2 No. 78 A_3, A_7, A_{11}, E_1, F_2, FF, G_{19} No. 85 K_2 No. 88 A_7, F_2, FF, K_1 No. 823 G_6
5/16″ x 1″ —	No. 825 A_{38}, A_{12} Bracket.
3/8″ x 3/4″—	No. 83 G_1 No. 93 G_1 No. 95 K_2 No. 103 K_1
3/8″ x 1″ —	No. 85 F_2 No. 88 F_8 No. 103 A_1, A_5, F_2, F_7, F_8 No. 105 K_2 No. 108 F_2, FF, G_1, K_2 No. 114 F_1, G_6 No. 122 F_2, K_2 No. 124 A_1, G_1, G_6 No. 146 K_2 No. 730 F_2, G_6 No. 823 K_2 No. 825 F_2, FF, G_6, 1/2″ Dodge F_4, K_2, 5/8″ Dodge F_4, K_2 3/4″ Dodge F_2, 3/4″ Monobar F_2, G_{13}, 1″ Monobar F_2, G_{13}
3/8″ x 1 3/4″—	1/2″ and 5/8″ Dodge A_1
1/2″ x 1″ —	No. 103 E_1 No. 114 K_1
1/2″ x 1 1/4″—	No. 124 F_8 No. 160 K_2 No. 730 K_2, 825 G_1, K_1, K_2 No. 840 K_2, K_1, 3/4″ Dodge K_2, 1 1/4″ Monobar F_2, G_{13} 1 1/2″ Monobar F_2, G_{13}
5/8″ x 2 1/4″—	No. 825 A_{12}

NOTE—When Special Flights or Buckets are used, the length of the Bolts should be increased accordingly.

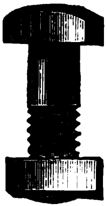
Elevator Bolts



Button Head Bolts

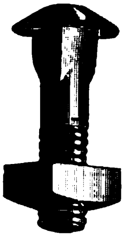
For Attaching Elevator Buckets to Link-Belting.

3/16 inch x 1/2 inch, per 100	$1 20
3/16 inch x 5/8 inch, per 100	1 20
1/4 inch x 5/8 inch, per 100	1 50
1/4 inch x 3/4 inch, per 100	1 50



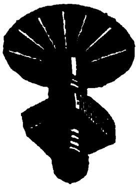
Square Head Bolts

1/4 inch x 3/4 inch, per 100	$1 70
3/8 inch x 3/4 inch, per 100	2 40
3/8 inch x 1 inch, per 100	2 40



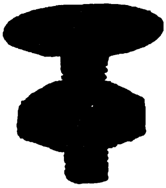
Carriage Bolts

1/4 inch x 1 1/2 inch, per 100	$1 00
5/16 inch x 1 1/2 inch, per 100	1 20
3/8 inch x 1 3/4 inch, per 100	1 68
3/8 inch x 2 inch, per 100	1 76
3/8 inch x 2 1/2 inch, per 100	1 92
1/2 inch x 2 inch, per 100	3 00
5/8 inch x 2 inch, per 100	5 20



Corrugated Belt Bolts

1/4 inch x 1/2 inch, per 100	$1 20
1/4 inch x 5/8 inch, per 100	1 30
1/4 inch x 3/4 inch, per 100	1 40
1/4 inch x 1 inch, per 100	1 60

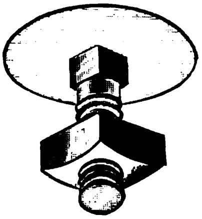


Eclipse Bolts

1/4 inch x 1/2 inch, per 100	$1 20
1/4 inch x 5/8 inch, per 100	1 30
1/4 inch x 3/4 inch, per 100	1 40
1/4 inch x 1 inch, per 100	1 60

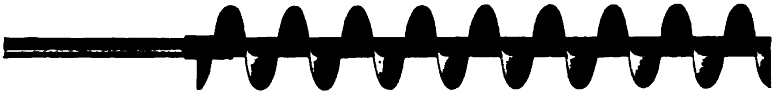
Flat Head, Wrought Iron Bolts

3/16 inch x 3/4 inch, per 100	$2 20
3/16 inch x 1 inch, per 100	2 30
1/4 inch x 3/4 inch, per 100	2 20
1/4 inch x 7/8 inch, per 100	2 30
1/4 inch x 1 inch, per 100	2 30
1/4 inch x 1 1/4 inch, per 100	2 40
1/4 inch x 1 1/2 inch, per 100	2 60
5/16 inch x 1 inch, per 100	3 00
5/16 inch x 1 1/4 inch, per 100	3 20
5/16 inch x 1 1/2 inch, per 100	3 40



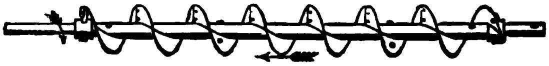
The above prices are subject to change at any time without notice.

Screw Conveyor

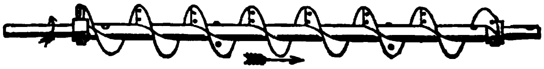


We supply, upon short notice, this conveyor mounted upon hollow shafts, as shown above, or with extra heavy flights mounted upon a solid shaft and with fittings to match. Order by the letter and names indicated below.

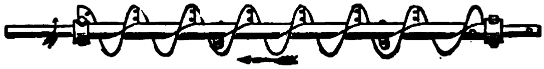
A. Right hand ....



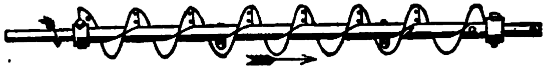
B. Right hand..........



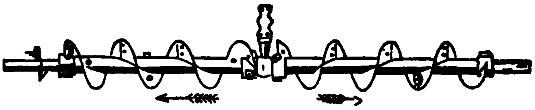
C. Left hand...........



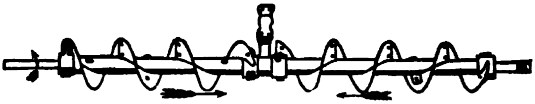
D. Left hand...... ....



E. Right and left hand..



F. Right and left hand..



PRICE LIST OF SCREW CONVEYOR AS USUALLY MADE AND MOUNTED ON HOLLOW SHAFTS

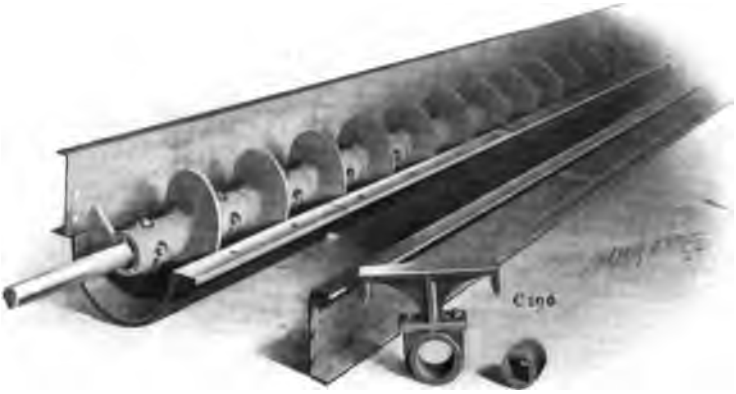
Diam. in Inches	Standard Length	Inside Diam. of Hollow Shaft	Maximum Speed	Capacity per Hour	Price per Foot, Steel Flights	Price per Foot, Galvanized Iron
4	8 ft.	1 in.	100	100	$1.00	$1.28
6	10 "	1½ "	140	300	1.67	2.03
9	10 "	1½ "	150	1,000	2.00	2.63
12	12 "	2 "	160	2,000	2.80	3.48
16	12 "	2 "	160	3,000	3.75	4.83
16	12 "	3 "	160	4,000	5.08	6.38
18	12 "	3 "	160	5,000	6.15	7.79

These prices include hangers, curved sheet-iron lining, couplings and bolts, complete. If hangers or linings are not desired, deduct for either, per foot of conveyor: 4-inch, 2½c; 6-inch, 3½c; 9-inch, 5c; 12-inch, 10c; 16-inch, 15c; 18-inch, 20c.

Cast Iron Spiral Conveyor

PATENTED

For Handling Sand, Ashes, and Other Gritty Substances

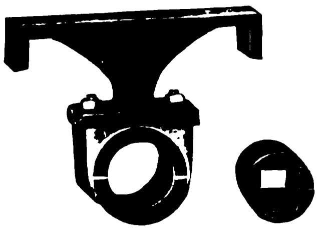


Broken flights can be quickly replaced without removing the Conveyor.

Hangers and Couplings

PATENTED

THE couplings are square and fitted with chilled sleeves, as shown. The hangers are also fitted with chilled bearings. These sleeves and bearings sustain the entire journal friction, and being split, are readily renewed without removing the Conveyor.

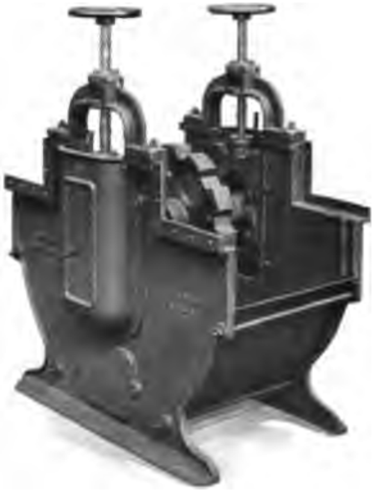


Price List

	DIAMETER OF SCREW.					
	6 inch.	10 inch.	12 inch.	14 inch.	16 inch.	18 inch.
Price per foot	\$2 65	\$3 80	\$4 20	\$4 70	\$5 20	\$5 65
Hangers, each	1 20	2 10	4 20	5 00	5 80	6 15
Flights, each (2 halves)	65	1 35	2 20	3 00	3 70	4 60
C. I. Trough, per foot	.....	3 30	4 20	5 20	6 20	7 50
Diameter of Shaft at ends	$1\frac{3}{16}$ in.	$1\frac{11}{16}$ in.	$1\frac{15}{16}$ in.	$2\frac{3}{16}$ in.	$2\frac{7}{16}$ in.	$2\frac{7}{16}$ in.
Standard Lengths	......	10 ft.	12 ft.	12 ft.	12 ft.	12 ft.
Capacity cubic feet per hour at 30 revolutions per minute	.. ...	300	500	750	1,100	1,500

Price per foot includes one hanger, coupling and sleeve with each standard length.

Elevator Boots



THE Cast Iron Elevator Boot furnishes a substantial foundation for the elevator leg. It has babbitted self-adjusting take-up boxes, side cleaning doors, and other modern features of construction. Supplied with sprocket wheels or pulleys as desired.

Number of Boot indicates approximately the diameter of wheel or pulley used. This, however, varies with size of chain and projection of bucket.

Price List

Number of Boot.	Length of Bucket, Inches.	Maximum Face of Pulley, Inches.	Price of Boot, Complete.	Number of Boot.	Length of Bucket, Inches.	Maximum Face of Pulley, Inches.	Price of Boot, Complete.
10	4	5	$17 00	18	12	13	$44 00
10	5	6	18 00	18	14	15	47 00
12	5	6	20 00	20	10	11	52 00
12	6	7	22 00	20	12	13	54 50
12	7	8	24 00	20	14	15	56 50
14	6	7	28 00	20	16	17	58 50
14	7	8	29 50	20	18	19	60 50
14	8	9	31 00	20	20	21	63 00
16	8	9	33 00	24	12	13	72 00
16	9	10	34 00	24	14	15	75 00
16	10	11	35 00	24	16	17	78 00
16	12	13	37 00	24	18	19	81 00
18	8	9	40 00	24	20	21	84 00
18	10	11	42 00	..	..	..	.....

Special Steel Boots

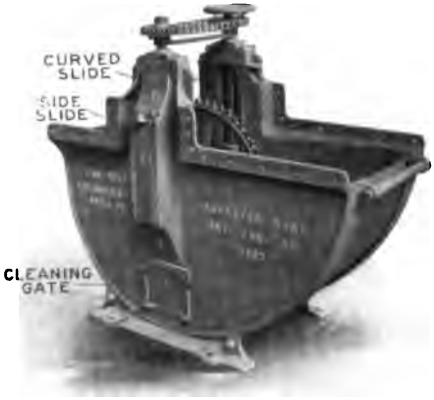
With rigid or take-up bearings, designed for special conditions.

The Link-Belt Safety Elevator Boot

Patented

IS especially valuable in handling coarse and gritty materials. It has the following points of superiority:

The chute end, being longer and wider than the back, gives free escape for loaded buckets, effectually preventing jamming or breaking of material.



Take-up screws are connected by Ewart Link-Belting, insuring the same movement up and down of both ends of the shaft.

Hollow take-up screws, through which oil is carried to the bearings, allowing the boot to be—

Entirely closed, and practically dust-tight.

Tight cleaning doors, having *no bolts,* and consequently easy to remove.

A safety device for securing the nuts of the take-up screws, making serious breakage impossible.

Price List of Safety Elevator Boots

Complete with Wheel or Pulley

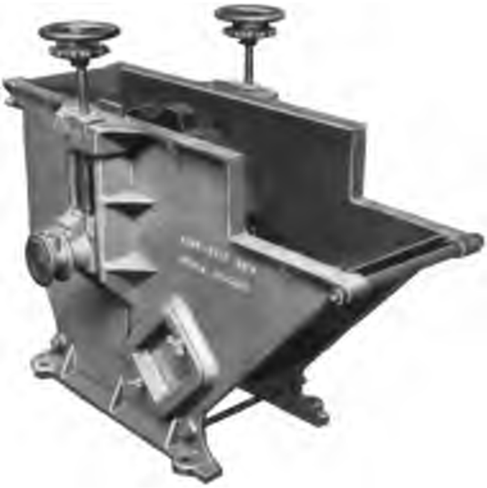
No.	Size of Bucket.	Diameter of Boot Wheel.	Price, Complete.
5	4x 3	14	$24 00
5	5x 4	12½	25 00
5	6x 4	12½	26 00
7	7x 4½	18½	36 00
7	8x 5	16¾	37 00
7	"B" 10x 4	16¾	39 00
7	10x 6	15½	40 00
7	"B" 12x 5½	16¾	41 00
9	12x 7	17¼	55 00
9	14x 7	17¼	58 00
12	12x 7	20	80 00
12	14x 7	20	82 00
12	14x 9	18	83 00
12	16x10	17½	84 00
12	18x10	17½	85 00
15	20x10	29	114 00
15	24x10	29	116 00
15	30x10	29	120 00
18	20x12	36	150 00
18	24x12	36	155 00
18	30x12	36	160 00

Special Elevator Boots

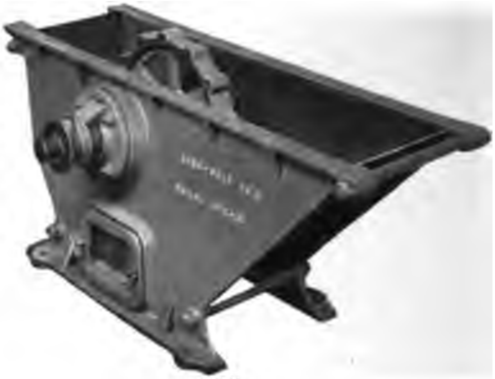
For Handling Materials of a Highly Abrasive Character Which Penetrate and Rapidly Destroy Unprotected Bearings.

STYLE "A" has adjustable bearings placed outside the boot and protected from dust by a sliding plate, fitted closely to the shaft and moving up or down with same, as the adjustment is changed.

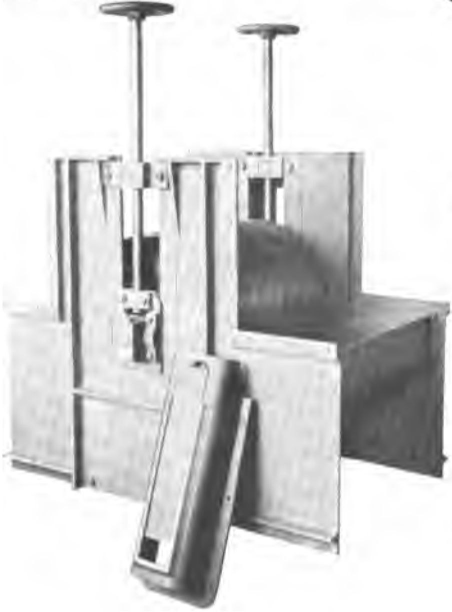
Style "B" has rigid bearings also placed outside and protected by glands and stuffing boxes. Prices quoted on application.



"A"

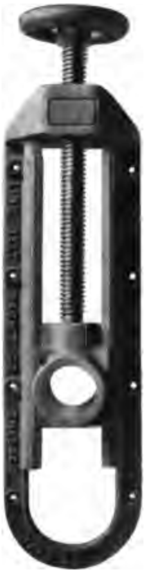


"B"



Cast Iron Grain Elevator Boot, Dust-Tight

Special provision is made for protection, accessibility, and lubrication of bearings. When desired, removable slides form the bottom both front and back. Made only in large sizes for grain elevator work.



STYLE 'A"

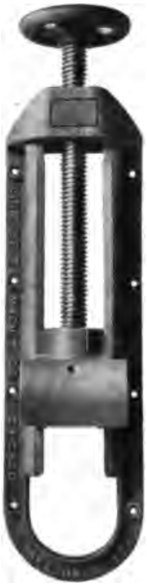
"Take-Ups"

STYLE "A" box passes through frame.

Style "B" box sets above frame.

Sizes above No. 20 have handles instead of hand wheels.

NOTE—In ordering, give diameter of shaft for which Take-Up is desired.



STYLE "B"

Price List

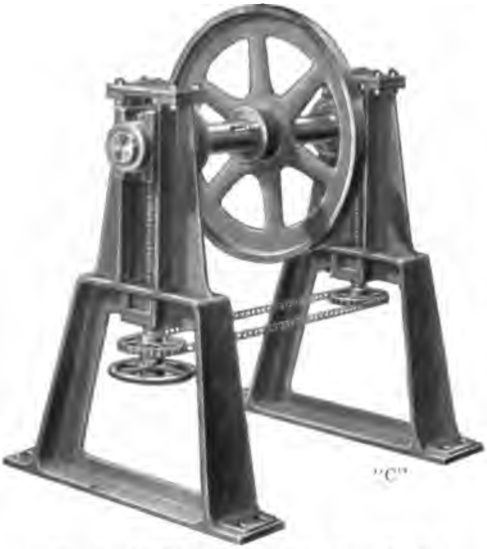
No. of Frame.	Diameter of Shaft.	Price Each, A or B.	No. of Frame.	Diameter of Shaft.	Price Each, A or B.
4	$\frac{11}{16}$	$1 75	20	$2\frac{9}{16}$	$9 50
4	$\frac{13}{16}$	1 90	20	$2\frac{11}{16}$	10 00
4	$\frac{15}{16}$	2 00	20	$2\frac{13}{16}$	11 00
5	$1\frac{3}{16}$	2 55	24	$2\frac{15}{16}$	13 50
5	$1\frac{5}{16}$	2 70	24	$3\frac{7}{16}$	14 00
7	$1\frac{7}{16}$	3 25	24	$3\frac{15}{16}$	15 00
7	$1\frac{9}{16}$	3 50	25	$2\frac{7}{16}$	19 50
7	$1\frac{11}{16}$	4 00	25	$2\frac{11}{16}$	20 00
9	$1\frac{15}{16}$	4 75	25	$2\frac{15}{16}$	20 50
9	$2\frac{3}{16}$	5 00	36	$2\frac{15}{16}$	19 00
12	$2\frac{3}{16}$	6 00	36	$3\frac{7}{16}$	19 50
12	$2\frac{5}{16}$	6 25	36	$3\frac{15}{16}$	20 00
12	$2\frac{7}{16}$	6 75	42	$2\frac{7}{16}$	21 00
16	$2\frac{7}{16}$	17 50	42	$2\frac{11}{16}$	21 50
16	$2\frac{15}{16}$	18 25	42	$2\frac{15}{16}$	22 00
20	$2\frac{7}{16}$	9 00	48	$3\frac{15}{16}$	35 00

The number of the Take-Up indicates its length of adjustment in inches.

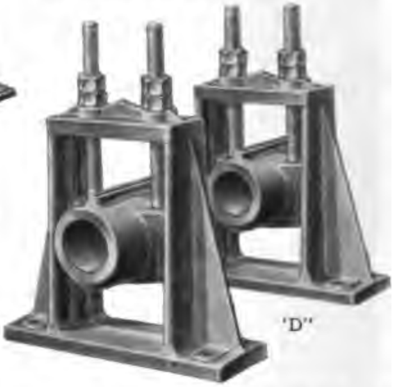
Take-Ups Nos. 16 and 25 are extra strong and designed for heavy work.

Link-Belt Elevator Head Take-Ups

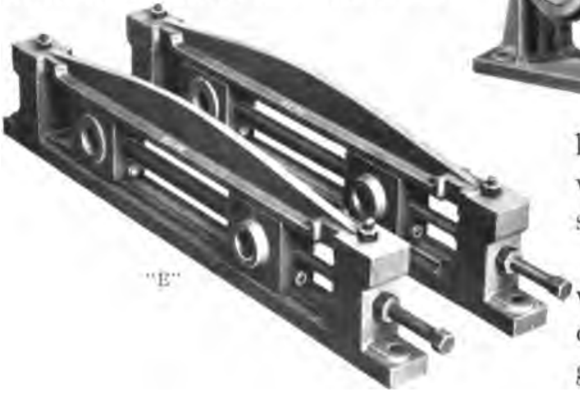
MAINTAIN a fixed distance between buckets and bottom of boot, and permit a minimum depth of excavation at foot of elevator.



"C"



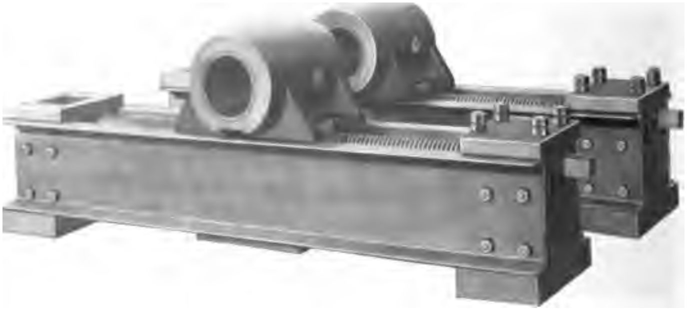
"D"



"E"

Style "C" is suitable for light or medium work, but where the load supported is very heavy, style "D" should be employed.

Style "E" used with elevators or conveyors having geared head, to maintain a fixed distance between centers of head and counter shafts. Prices quoted on application.



"LAKE-SHORE" TAKE-UPS FOR EXTRA HEAVY WORK.

Pulleys

OUR pulleys are machine moulded, bored, and turned in the lathe, carefully balanced, are make either straight or crowning face, and are provided with set screws or key seat, as desired.

The tight and loose pulleys should have crowning faces, and the driving pulleys for shifting belts should have straight faces.

To save time, in ordering, please give full particulars, stating diameter, width, and kind of face, single or double belt, bore, set screw or key seat, and if anything special is desired, as tight and loose, flanged or split.

To Find Horse Power of Pulleys

Let D=diameter of pulley in inches.
" F=width of belt in inches.
" R=revolutions per minute.
" H. P.=horse power.

$$\text{Then horse power}=\frac{D\times F\times R}{2860}\text{for single belt.}$$

$$\text{Horse power}=\frac{D\times F\times R}{1720}\text{for double belt.}$$

EXAMPLE:

34-inch pulley for 8-inch single belt running 75 revolutions per minute.

$34\times 8\times 75=20400$

divide 20400 by 2860=7.13 horse power.

$$\text{In the same manner find diameter of pulley}=\frac{2860\times \text{H. P.}}{R\times F}$$

$$\text{Or width of belt (single)}=\frac{2860\times \text{H. P.}}{D\times R}$$

For double belt use 1720 in place of 2860.

Price List of
Single Belt Pulleys

Machine Moulded

BORED, TURNED, AND BALANCED, WITH SET SCREWS OR KEY SEATS.

NOTE.—Heavy line indicates LIMIT, beyond which we do not make Crown Face Pulleys without extra charge.

Diam. in Inches.	FACE IN INCHES.															
	3	4	5	6	7	8	9	10	11	12	14	16	18	20	22	24
6	$1 95	$2 10	$2 30	$2 55	$2 80	$3 05	$3 30									
7	2 10	2 25	2 50	2 75	3 00	3 25	3 55	$3 85								
8	2 25	2 45	2 70	2 95	3 20	3 45	3 80	4 15								
9	2 40	2 60	2 85	3 15	3 45	3 75	4 10	4 45								
10	2 55	2 75	3 05	3 40	3 70	4 05	4 40	4 75	$5 10							
11	2 70	2 95	3 25	3 60	3 95	4 35	4 65	5 05	5 40							
12	2 85	3 15	3 50	3 85	4 20	4 55	4 95	5 35	5 75	$6 20						
13	3 05	3 35	3 70	4 10	4 45	4 90	5 25	5 70	6 15	6 60						
14	3 25	3 55	3 90	4 35	4 70	5 20	5 60	6 10	6 55	7 05	$8 25					
15	3 40	3 75	4 15	4 60	5 05	5 50	5 95	6 45	6 95	7 50	8 75					
16	3 60	3 95	4 40	4 90	5 35	5 85	6 30	6 85	7 40	8 00	9 40	$10 90				
17	3 80	4 20	4 70	5 20	5 70	6 20	6 75	7 30	7 90	8 50	10 05	11 70				
18	4 00	4 45	4 95	5 50	6 05	6 60	7 15	7 75	8 40	9 10	10 80	12 60				
19	4 25	4 70	5 25	5 85	6 45	7 05	7 65	8 30	9 00	9 75	11 60	13 55				
20	4 45	4 95	5 55	6 20	6 85	7 50	8 15	8 85	9 60	10 40	12 40	14 50	$16 60			
21	4 70	5 25	5 85	6 55	7 25	7 95	8 65	9 40	10 20	11 05	13 20	15 45	17 60			
22	4 90	5 55	6 15	6 90	7 65	8 40	9 15	9 95	10 80	11 70	14 05	16 40	18 75			
23	5 15	5 80	6 50	7 25	8 05	8 85	9 65	10 50	11 45	12 40	14 85	17 35	19 85			
24	5 40	6 10	6 85	7 65	8 45	9 30	10 20	11 10	12 10	13 15	15 70	18 30	21 00			
25	5 70	6 50	7 25	8 10	8 95	9 90	10 85	11 85	12 90	14 05	16 65	19 35	22 15			
26	6 00	6 90	7 65	8 60	9 45	10 55	11 50	12 60	13 75	15 00	17 65	20 40	23 30	$26 30		
27	6 35	7 30	8 15	9 05	10 00	11 10	12 20	13 35	14 60	15 90	18 60	21 45	24 50	27 55		
28	6 75	7 70	8 50	9 50	10 60	11 70	12 90	14 10	15 45	16 85	19 55	22 50	25 65	28 80	$32 00	
29	7 25	8 10	9 00	10 00	11 15	12 35	13 60	14 90	16 30	17 70	20 55	23 60	26 80	30 10	33 40	
30	7 60	8 55	9 45	10 55	11 75	13 00	14 30	15 75	17 15	18 60	21 55	24 70	28 00	31 40	34 80	
31	8 05	8 95	9 95	11 10	12 35	13 70	15 10	16 55	18 05	19 55	22 60	25 85	29 25	32 75	36 10	
32	8 45	9 40	10 45	11 65	12 95	14 40	15 90	17 40	19 00	20 55	23 70	27 05	30 55	34 15	38 40	
33	8 90	9 90	11 00	12 25	13 60	15 05	16 70	18 25	19 90	21 50	24 80	28 25	31 80	35 50	39 70	
34	9 40	10 40	11 50	12 90	14 35	15 85	17 55	19 10	20 85	22 50	25 90	29 45	33 10	36 95	41 05	
35	9 90	10 90	12 10	13 50	15 00	16 60	18 25	19 95	21 75	23 50	27 00	30 65	34 40	38 30	42 35	$46 10
36	10 40	11 40	12 65	14 10	15 70	17 35	19 10	20 85	22 70	24 50	28 10	31 85	35 70	39 70	43 70	47 70
38		12 55	13 95	15 60	17 95	19 05	20 90	22 80	24 75	26 65	30 50	34 45	38 50	42 80	47 10	51 45
40		13 70	15 30	17 10	18 90	20 80	22 75	24 75	26 80	28 80	32 90	37 10	41 35	45 90	50 55	55 25
42		14 90	16 70	18 60	20 55	22 55	24 60	26 70	28 85	31 00	35 30	39 70	44 20	49 00	54 00	59 00
44		16 25	18 20	20 25	22 30	24 45	26 60	28 80	31 10	33 40	37 90	42 70	47 55	52 60	58 00	63 30
46		17 65	19 70	21 85	24 05	26 35	28 60	30 95	33 40	35 80	40 60	45 70	50 90	56 30	62 00	67 60
48		19 00	21 20	23 50	25 85	28 25	30 65	33 15	35 70	38 20	43 30	48 70	54 20	60 00	66 00	72 00
50			22 80	25 30	27 75	30 25	32 80	35 45	38 10	40 80	46 20	52 00	57 95	64 00	70 40	76 85
52			24 50	27 10	29 65	32 30	35 00	37 75	40 50	43 40	49 20	55 30	61 75	68 10	74 80	81 70
54			26 20	28 90	31 65	34 40	37 20	40 05	43 00	46 00	52 20	58 70	65 50	72 20	79 30	86 50
56				30 85	33 55	36 30	39 25	42 25	45 45	48 75	55 40	62 30	69 50	76 60	84 15	91 80
58				32 80	35 50	38 35	41 35	44 55	47 95	51 50	58 60	65 90	73 50	81 00	89 05	97 15
60				34 80	37 50	40 35	43 45	46 85	50 45	54 20	61 80	69 60	77 50	85 50	93 95	102 50
	3	4	5	6	7	8	9	10	11	12	14	16	18	20	22	24

Intermediate widths of Face at next higher price.
Intermediate Diameters at extra prices.
For Split, Tight and Loose, and Flanged Pulleys, see additional prices on page 204.

Price List of

Double Belt Pulleys

Machine Moulded

BORED, TURNED, AND BALANCED, WITH SET SCREWS OR KEY SEATS.

NOTE.—These Pulleys are made either straight or crown face in sizes here given.

Diam. in Inches.	FACE IN INCHES.																
	5	6	7	8	9	10	11	12	14	16	18	20	22	24	26	28	30
10	$4 10	$4 55	$5 00	$5 50	$6 00	$6 55	$7 10	$7 65									
12	4 70	5 25	5 80	6 35	6 95	7 55	8 15	8 75	$10 10								
14	5 30	5 95	6 55	7 20	7 90	8 60	9 30	10 00	11 60								
16	6 00	6 70	7 45	8 20	9 00	9 90	10 60	11 45	13 25	$15 15							
18	6 75	7 60	8 45	9 30	10 20	11 10	12 05	13 05	15 10	17 20							
20	7 55	8 60	9 60	10 60	11 70	12 80	13 90	15 00	17 40	19 80	$22 40						
22	8 45	9 60	10 80	12 00	13 20	14 50	15 75	17 00	19 70	23 40	25 40						
24	9 35	10 65	12 00	13 40	14 80	16 20	17 65	19 00	22 00	25 10	28 40						
26	10 45	11 90	13 40	14 90	16 40	18 00	19 60	21 10	24 55	28 10	31 80	$35 55					
28	11 55	13 15	14 80	16 40	18 05	19 80	21 60	23 30	27 10	31 10	35 25	39 45	$43 75				
30	12 70	14 55	16 20	18 00	19 80	21 60	23 50	25 50	29 70	34 20	38 70	43 25	47 80				
32	14 10	16 05	17 90	19 85	22 20	23 85	25 90	28 00	32 65	37 45	42 30	47 45	52 00				
34	15 50	17 60	19 70	21 75	23 85	26 10	28 30	30 50	35 60	40 70	45 90	51 65	56 20				
36	16 95	19 20	21 45	23 70	26 00	28 30	30 70	33 10	38 55	44 00	49 50	55 90	60 40	$65 80			
38	17 15	21 05	23 45	25 90	28 35	30 80	33 35	35 95	41 65	49 15	53 50	59 80	65 05	70 85			
40	19 60	22 90	25 45	28 10	30 70	33 30	36 05	38 75	44 80	52 65	57 50	63 70	69 70	75 90			
42	22 05	24 80	27 55	30 30	33 05	35 85	38 75	41 60	47 95	54 40	61 00	67 60	74 30	81 00			
44	23 90	26 85	29 75	32 70	35 65	38 65	41 80	44 90	51 60	58 50	65 50	72 50	79 50	86 65			
46	25 80	28 90	32 00	35 15	38 35	41 55	44 90	48 20	55 30	62 60	70 00	77 40	84 80	92 30			
48	27 70	31 00	34 30	37 65	41 05	44 45	48 00	51 50	59 00	66 70	74 50	82 30	90 10	98 00			
50	29 75	33 30	36 80	40 30	43 85	47 45	51 15	54 80	62 70	70 85	79 15	87 40	95 70	104 10	112 60	121 25	129 90
52	31 85	35 65	39 30	43 00	46 75	50 50	54 35	58 15	66 45	75 05	83 80	92 50	101 80	110 30	119 30	128 40	137 65
54	33 95	37 90	41 80	45 70	49 65	53 60	57 55	61 50	70 25	79 25	88 50	97 70	107 00	116 50	126 00	135 60	145 30
56		40 65	44 50	48 50	52 55	56 60	60 75	65 00	74 35	83 55	93 50	103 25	113 10	123 15	133 20	143 20	153 50
58		43 25	47 20	51 30	55 45	59 65	64 00	68 50	78 45	87 85	98 50	108 85	119 25	129 80	140 40	150 90	161 70
60		46 00	50 00	54 10	58 35	62 75	67 30	72 00	82 55	92 15	103 50	114 45	125 45	136 50	147 65	158 80	169 90
62		48 30	52 65	57 10	61 65	66 30	71 10	76 00	86 95	97 25	108 70	120 35	131 85	143 20	155 15	166 85	178 50
64		50 60	55 35	60 10	64 95	69 90	74 90	80 00	91 35	102 35	113 85	126 25	138 30	150 90	162 65	174 90	187 10
66		53 00	58 05	63 15	68 30	73 50	78 75	84 00	95 75	107 55	119 50	132 15	144 80	157 50	170 20	182 95	195 70
68		55 70	60 95	66 25	71 60	77 10	82 55	88 20	100 25	112 55	125 10	138 35	151 50	165 00	178 05	191 35	204 60
70		58 40	63 85	69 25	75 00	80 70	86 40	92 40	104 85	117 65	130 80	144 55	158 25	172 50	185 95	199 75	213 60
72		61 00	66 75	72 55	78 40	84 30	90 30	96 50	109 45	122 75	136 50	150 60	165 00	179 50	193 85	208 20	222 60
74				75 75	81 90	88 50	94 80	101 00	114 45	128 25	142 50	157 10	172 00	187 00	201 85	216 75	231 70
76				79 05	85 50	92 70	99 30	105 50	119 45	133 75	148 45	163 70	179 00	194 50	209 85	225 35	240 80
78				82 35	89 10	95 90	102 85	110 00	124 50	139 25	154 50	170 30	186 10	202 00	217 95	233 95	249 95
80				85 95	92 90	99 85	106 95	114 30	129 50	144 95	160 80	177 10	193 40	210 00	226 25	242 85	259 35
82				89 55	96 70	103 85	111 15	118 65	134 50	150 65	167 10	183 90	200 70	218 00	234 65	251 75	268 80
84				93 25	100 50	107 85	115 35	123 00	139 60	156 40	173 50	190 75	208 10	225 50	243 05	260 65	278 30
90						121 00	129 40	138 00	155 60	173 40	191 50	210 70	230 05	249 50	268 95	288 45	307 95
96						134 75	143 85	153 00	172 10	191 75	212 50	233 00	254 50	276 00	297 00	318 00	339 50
102						150 75	160 85	171 00	192 00	213 40	233 50	256 25	279 05	302 00	324 95	347 95	370 95
108						165 35	176 10	187 00	209 50	232 50	256 00	280 20	304 55	329 00	353 35	377 80	402 35
114						182 10	193 50	205 00	228 40	252 45	277 00	303 00	329 50	356 00	382 30	408 70	435 30
120						196 55	208 65	221 00	246 10	271 75	298 00	325 90	353 80	382 50	410 80	439 20	467 60
	5	6	7	8	9	10	11	12	14	16	18	20	22	24	26	28	30

Intermediate widths of Face at next higher price.
Intermediate Diameters at extra prices.
Prices on Double Arm and Extra Heavy Pulleys quoted on application.
For Split, Tight and Loose, and Flanged Pulleys, see additional prices on page 204.

Additional Pulley Price List

To be Added to Price Lists of Plain Pulleys Given on Previous Pages

For FINISHED SPLIT PULLEYS add the following prices to list prices of Plain Pulleys.

Diameter, Inches.	Face, Inches.	Price.	Diameter, Inches.	Face, Inches.	Price.	Diameter, Inches.	Face, Inches.	Price.
8 to 10	3 to 6	$1 75	31 to 36	3 to 4	$4 50	62 to 84	6 to 10	$20 00
	7 to 10	2 15		5 to 6	5 60		11 to 14	26 00
	11 to 12	3 10		7 to 10	6 75		15 to 20	35 00
				11 to 14	9 80		21 to 30	48 00
11 to 18	3 to 6	2 20		15 to 20	13 00			
	7 to 10	2 85		21 to 24	16 00	90 to 120	10 to 14	38 00
	11 to 16	4 00					15 to 20	53 50
			38 to 46	4 to 6	7 50		21 to 30	70 00
19 to 23	3 to 4	2 65		7 to 10	9 90			
	5 to 6	3 40		11 to 14	13 50			
	7 to 10	4 05		15 to 20	18 00			
	11 to 14	5 60		21 to 24	24 00			
	15 to 18	7 30						
			48 to 60	4 to 6	10 00			
24 to 30	3 to 4	3 60		7 to 10	13 00			
	5 to 6	4 40		11 to 14	18 00			
	7 to 10	5 40		15 to 20	25 00			
	11 to 14	7 25		21 to 30	34 50			
	15 to 22	10 00						

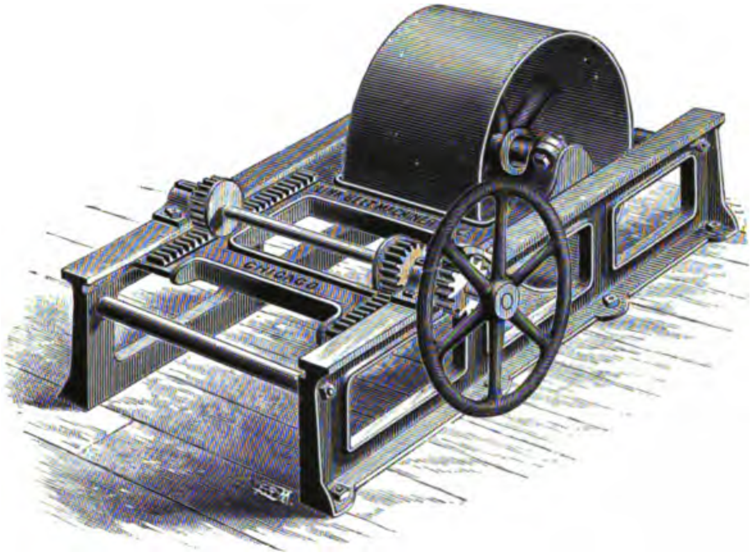
For TIGHT and LOOSE PULLEYS per pair, or for FLANGED PULLEYS each, add the following prices to list prices of Plain Pulleys.

Diameter, Inches.	Additional Price for One Pair Tight and Loose Pulleys.	Additional Price for One Pulley with Two Flanges.	Diameter, Inches.	Additional Price for One Pair Tight and Loose Pulleys.	Additional Price for One Pulley with Two Flanges.
6 to 8	$1 60	$4 65	33 to 34	$6 15	$18 70
9 to 10	1 95	5 20	35 to 36	6 50	20 35
11 to 12	2 30	5 75	38 to 40	7 20	23 10
13 to 14	2 65	6 30	42 to 44	7 90	26 40
15 to 16	3 00	7 15	46 to 48	8 60	29 70
17 to 18	3 30	8 00	50 to 52	9 30	33 00
19 to 20	3 70	8 80	54 to 56	10 00	36 30
21 to 22	4 05	9 90	58 to 60	10 70	40 70
23 to 24	4 40	11 00	62 to 66	11 70	46 20
25 to 26	4 75	12 10	68 to 72	12 70	51 70
27 to 28	5 10	13 75	74 to 78	13 70	57 20
29 to 30	5 45	15 40	80 to 84	14 70	62 70
31 to 32	5 80	17 05			

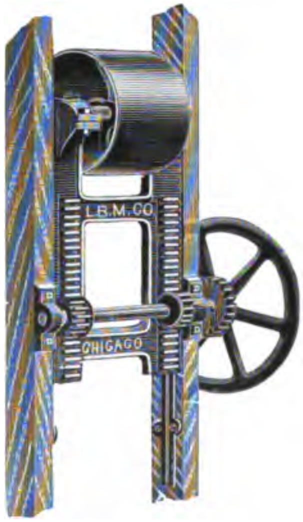
Pulleys with one flange only, one-half that given above.

Pulleys with three flanges, one-half more than given above.

Iron Frame Belt Tightener, Complete



These Belt Tighteners are substantial, well finished, and have accurately balanced straight-faced pulleys. We carry a stock of these Tighteners, enabling us to fill orders promptly.



BELT TIGHTENER FOR WOODEN FRAMES.

Price List

No	Length of Adjustment, Feet.	Size of Pulley, Diameter Face, Inches.	Diameter of Shaft, Inches.	Price, with Iron Side Frames.	Price, without Iron Frame.
00	1½	12 x 9	1 11/16	$37 50	$30 00
0	1⅔	18 x 12	1 11/16	50 00	40 00
1	2	24 x 14	1 15/16	70 00	56 00
2	3½	28 x 20	2 7/16	100 00	82 00
3	4	30 x 26	2 11/16	160 00	120 00
4	5	42 x 38	2 15/16	300 00	250 00

Leather Belting

Price List of Single Leather Belting

Size, Inches.	Price Per Running Foot.	Size, Inches.	Price Per Running Foot.	Size, Inches.	Price Per Running Foot.	Size, Inches.	Price Per Running Foot.	Size, Inches.	Price Per Running Foot.
1	$0 17	3½	$0 76	9	$1 98	19	$4 18	30	$6 60
1¼	23	3¾	82	10	2 20	20	4 40	32	7 04
1½	29	4	87	11	2 42	21	4 62	34	7 48
1¾	35	4½	98	12	2 64	22	4 84	36	7 92
2	41	5	1 09	13	2 86	23	5 06	38	8 36
2¼	47	5½	1 21	14	3 08	24	5 28	40	8 80
2½	53	6	1 32	15	3 30	25	5 50	44	9 68
2¾	59	6½	1 43	16	3 52	26	5 72	48	10 56
3	64	7	1 54	17	3 74	27	5 94	52	11 44
3¼	70	8	1 76	18	3 96	28	6 16	56	12 32

NOTE.—For price of double leather belt, double the price of single leather.

Price List of Rubber Belting

Width, Inches.	2 Ply.	3 Ply.	4 Ply.	5 Ply.	6 Ply.
3	$0 22	$0 26	$0 31		
3½	26	30	37		
4	30	34	42		
4½	33	39	47		
5	36	43	52		
6	43	52	62		
7	51	60	73		
8	59	70	84	$1 05	$1 26
9	67	80	95	1 18	1 42
10	75	90	1 07	1 33	1 60
11	83	1 00	1 18	1 47	1 77
12	91	1 08	1 30	1 62	1 95
13	1 00	1 18	1 42	1 77	2 13
14	1 08	1 28	1 54	1 92	2 31
15	1 16	1 38	1 66	2 07	2 49
16	1 25	1 50	1 78	2 22	2 67
18		1 70	2 02	2 52	3 03
20		1 90	2 26	2 82	3 39
22		2 12	2 52	3 15	3 78
24		2 36	2 80	3 50	4 20
26		2 60	3 08	3 85	4 62
28		2 84	3 36	4 20	5 04
30			3 64	4 55	5 46
32			3 92	4 90	5 88
34			4 20	5 25	6 30
36			4 48	5 60	6 72
38			4 76	5 95	7 14

For Rubber Belt Conveyors Handling Gritty Materials

We furnish belts of the highest grade, with an extra thickness of rubber on conveying side, if desired.

Transmission of Power by Manila Rope

THE advantages of transmitting power by Manila Rope are now so well known, and there are so many Rope Drives in daily operation throughout the country, that we will not attempt in this book an exhaustive treatise upon the subject. Special Booklet No. 49 will be mailed on request of those desiring further information.

We have had an extentensive experience in the designing and installation of this class of machinery, having erected Rope Drives capable of transmitting from one to 1,500 horse power. We cannot too strongly emphasize the fact that the designing of Rope Transmissions requires special skill and knowledge obtained only by long experience. Failure to recognize this fact has proved costly to many concerns and done much to cause unwarranted prejudice against this most modern, economical, and satisfactory means of transmitting power.

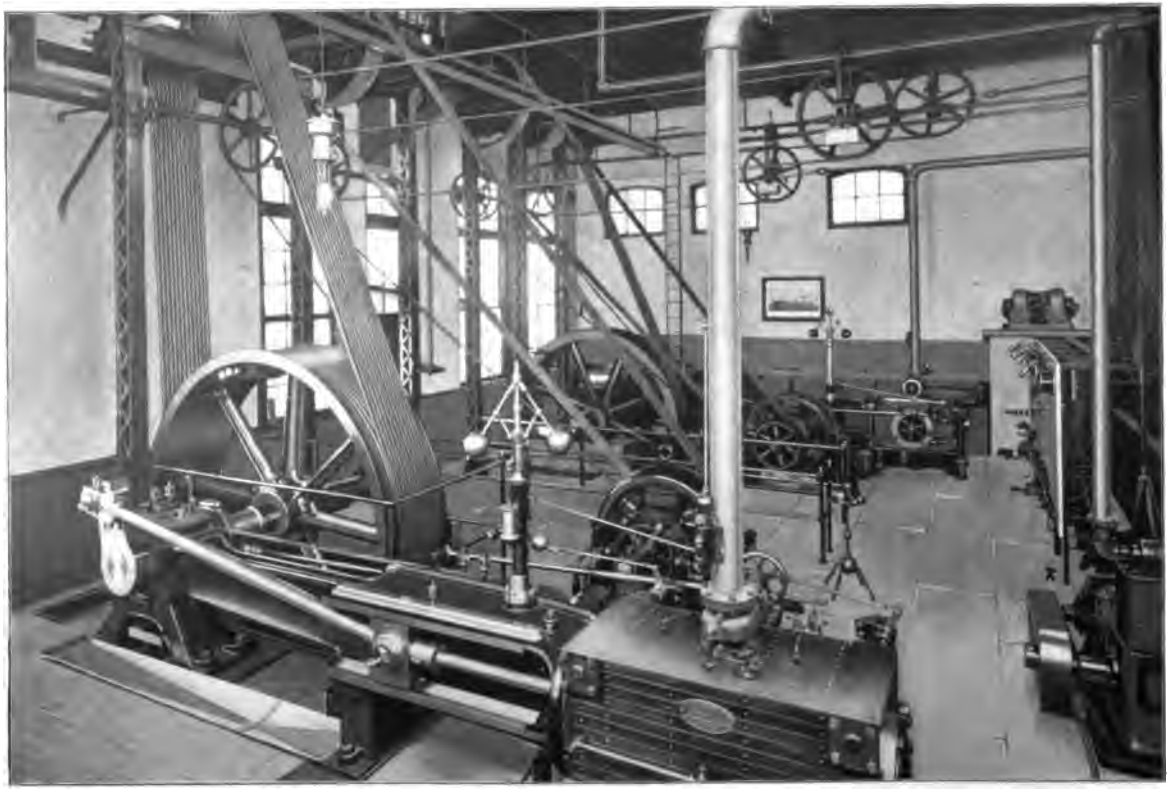
The distribution of power in our entire plant is accomplished by Manila Rope, and a practical illustration may here be seen of the system which this company first introduced, of Manila Rope Power Transmission employing *Multiple Grooved Iron Sheaves*, with a continuous rope and tension carriage.

We are prepared to make *plans and estimates* for furnishing and erecting machinery to transmit any required power; or, if preferred, will supply skilled superintendent and working drawings for the installation of our machinery.

In writing for information, please give the following particulars:

Relative positions of shafts. (a) Angle.
(b) Distance between the points of application of power.
Speed and direction of rotation of each shaft.
Diameters of shafts.
Maximum horse power required.
Largest diameter of sheave that can be used.
Position and nature of any obstructions around which the rope must be guided.
Where clutches will be required, and whether a jaw or friction clutch should be used.
A rough sketch will greatly assist us.

Where power to be transmitted is considerable or location difficult, we will send one of our engineers to look over the ground and take the necessary measurements.



ENGINE ROOM LINK-BELT MACHINERY CO., CHICAGO

SHOWING TWO 175 HORSE-POWER ROPE DRIVES FROM CORLISS ENGINES TO JACK SHAFT. POWER IS DISTRIBUTED THROUGHOUT OUR ENTIRE PLANT BY MANILA ROPE TRANSMISSIONS.

Sheaves for Manila Rope Transmissions

With Link-Belt Patent Machine Moulded Grooves

From 20 Inches to 16 Feet in Diameter, and with any Number of Grooves for any Size of Rope

IF you have occasion to use Rope Transmissions, you will be interested in hearing about our Machine Moulded Sheaves. Perhaps you will appreciate their advantages best by considering first the disadvantages of those you have been using. Your sheaves, whether made from your own patterns or bought elsewhere, have had their grooves formed by segment cores. These cores twist and warp out of true in drying, and are generally so much offset at the joints as to require heavy cuts in turning, with a consequent waste in metal and tendency of the rim to spring out of true. The cut also goes clear through the close-grained portion, or skin of the casting, leaving spots of rough open-grained porous surface, with a resulting rapid deterioration of the sheave and rope, frequent renewals and vexatious delays.

Our sheaves, having grooves moulded on the only sheave moulding machine in the United States, are *lighter* and *stronger* than the corresponding sizes of sheaves made by old methods, the metal being distributed to much better advantage. The grooves are moulded *true* at the outset, thus reducing very materially the *time* and *waste* in the machine shop, and furnishing a *hard, smooth finished* surface, which increases the life of the sheave and rope; and the general result is a superior finished sheave at a *reduced cost.*

Our sheaves are turned with the greatest accuracy, all the grooves being finished to gauge to insure exactness in the circumference. This is an essential feature in multiple groove sheaves, as any variation in the circumference of different grooves will force the ropes to slip or creep, causing rapid wear and loss of power.

LINK-BELT
MACHINERY COMPANY
CHICAGO

Price List of

Sheaves for Manila Rope Transmissions

Patent Machine Moulded Grooves

Accurately Turned, Balanced, Bored, and Painted, with Set Screws or Key Seats

Diameter in Inches.	Number of Grooves.										
	1	2	3	4	5	6	7	8	9	10	12
20	15 00	17 50	20 00	22 50	26 00	30 50	35 00	39 50	43 00	48 00	......
22	16 00	19 00	22 00	25 00	29 00	32 00	37 50	42 00	47 00	52 00	......
24	17 50	21 00	23 00	27 00	31 00	35 00	40 00	46 00	50 00	56 00	......
26	19 00	23 00	24 50	29 00	33 50	39 00	44 00	49 00	55 00	60 00	......
28	20 50	24 25	27 00	31 00	36 00	41 00	47 00	53 00	59 00	64 00	......
30	22 00	26 25	29 00	33 00	39 00	44 00	50 00	56 00	62 00	69 00	82 00
32	24 00	28 50	31 00	35 00	41 00	46 00	53 00	59 50	66 00	72 00	87 00
34	26 00	30 00	33 50	37 50	43 50	49 00	57 50	64 25	71 25	78 00	94 50
36	28 00	32 00	36 00	40 50	46 25	52 00	61 00	68 50	76 00	83 25	101 00
38	30 00	34 25	38 50	42 00	49 00	58 00	65 00	73 00	81 00	89 25	107 00
40	32 00	36 50	41 00	44 50	52 00	60 00	68 50	77 00	86 00	96 00	113 50
42	34 25	38 75	43 50	47 00	55 50	64 00	73 00	82 50	91 00	101 00	121 00
44	36 75	41 00	46 25	51 00	59 00	67 50	77 50	86 00	95 50	106 00	128 50
46	39 25	43 75	49 25	53 00	62 50	71 75	81 25	91 00	101 50	112 50	135 00
48	42 00	47 50	52 50	57 00	66 00	76 00	86 50	96 50	107 50	119 50	142 00
50	45 00	50 00	54 75	61 00	69 75	80 50	92 00	102 50	113 00	125 50	149 00
52	48 25	53 25	58 00	65 00	73 50	87 25	97 00	107 50	119 50	132 00	157 50
54	51 25	56 50	61 75	69 00	79 00	90 00	102 50	113 25	126 50	139 50	166 00
56	55 00	60 50	65 00	73 00	83 00	95 25	108 00	121 00	134 00	148 00	176 00
58	58 50	64 50	69 50	77 00	87 00	100 00	114 50	127 50	140 50	156 00	184 50
60	63 00	69 00	74 00	81 00	92 00	106 00	121 50	135 00	148 50	164 00	193 50
62	67 00	73 00	78 50	86 00	97 00	112 00	127 00	141 50	155 50	172 50	203 50
64	71 00	77 50	83 00	91 50	104 00	119 00	134 50	149 00	163 00	181 50	214 00
66	75 00	82 00	88 00	96 75	109 25	125 00	141 75	157 00	172 50	190 50	225 00
68	80 50	87 00	93 00	102 00	116 00	132 00	149 00	166 00	183 00	201 00	236 50
70	86 00	93 00	98 50	108 50	122 00	139 00	156 50	174 00	191 00	211 00	248 50
72	91 50	98 50	105 00	115 00	129 50	146 50	164 50	182 00	201 50	221 50	261 00
74	97 50	103 50	111 00	122 00	136 50	154 50	173 50	192 00	211 50	233 00	274 00
76	103 50	111 00	117 00	129 00	144 00	163 00	181 00	203 00	223 00	245 50	286 50
78	110 00	118 50	123 50	136 00	152 00	172 00	192 50	213 50	234 50	257 50	300 00
80	116 50	123 50	130 00	143 00	161 00	182 00	203 00	224 50	247 00	270 00	316 00
82	125 00	132 00	137 50	150 50	169 00	191 00	212 50	239 50	258 50	282 50	330 50
84	132 00	139 50	146 50	159 00	178 50	201 50	224 50	248 50	272 50	297 00	346 00
86	141 00	148 00	154 00	168 00	187 50	211 50	235 00	260 00	285 00	311 00	361 50
88	149 50	157 00	162 50	177 00	198 00	223 50	248 00	274 00	300 00	326 50	379 00
90	159 00	166 00	172 00	187 50	208 00	234 00	259 50	287 00	313 50	341 00	395 50
92	168 50	176 00	182 50	198 00	220 00	247 00	273 50	301 00	329 00	357 00	415 00
94	178 00	185 00	193 00	208 00	230 00	258 00	285 50	315 00	343 00	373 00	432 50
96	190 00	198 00	205 00	219 00	242 00	270 00	299 00	329 00	359 00	390 00	453 00

Sheaves grooved for ¾, ⅞, 1, and 1⅛ inch Rope..... ......Discount.

Sheaves grooved for 1¼, 1⅜, and 1½ inch Rope............Discount.

On Sheaves larger than 96 inches in diameter, and grooved for ropes larger than 1½ inches, and on ROUGH SHEAVE CASTINGS, special prices will be quoted on application.

The Red Thread Brand of Tallow Laid Manila Transmission Rope

REVISED LIST ON ROPE

5/8	inch	4	cents per foot
3/4	"	6	" " "
7/8	"	8	" " "
1	"	9	" " "
1 1/8	"	13	" " "
1 1/4	"	15	" " "
1 3/8	"	20	" " "
1 1/2	"	22	" " "
1 3/4	"	35	" " "
2	"	40	" " "

It is manufactured exclusively for us by the best rope-makers in the country. It is made of selected long fiber, and is the rope we adopted after a series of unprejudiced tests which we made of all the best ropes obtainable in this country and Europe. Its first cost is greater than that of the ordinary Manila Rope, which our experience has shown to be not sufficiently durable for this class of work.

We carry a stock of all sizes and can make prompt shipment.

In order to obtain the best results, we would caution all users of Rope to run it onto the sheaves without kink or twist before splicing. We indicate by tags how to place the coil, and at which end to commence drawing it out or uncoiling it.

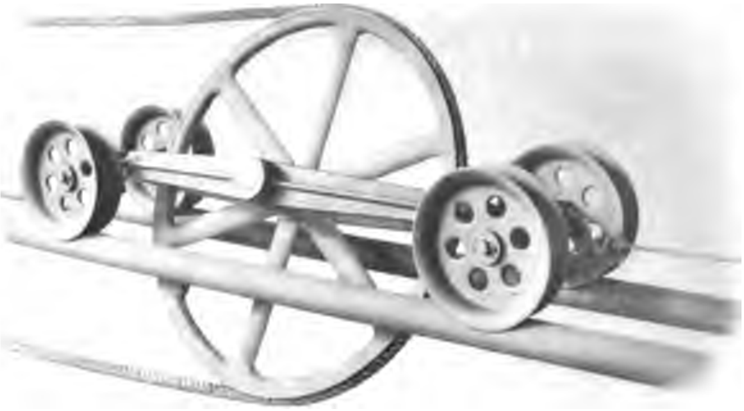
The Atlas Brand of Manila Transmission Rope

Is manufactured for us by the same rope-makers. It is of excellent quality and fully equal to the best quality of most other makes. We offer it at competition prices to those who do not consider our best grade necessary for the work in hand.

Link-Belt Rope Dressing

Keeps the Rope soft and pliable, protects it from external and internal friction, heat, and moisture. Especially desirable for out-of-door drives. It is put up in pails or molded into 3 lb. sticks for more convenient application, as shown.

Price,	3 lb. sticks	each,	$1 50
"	5 " pails	"	2 00
"	10 " "	"	4 00



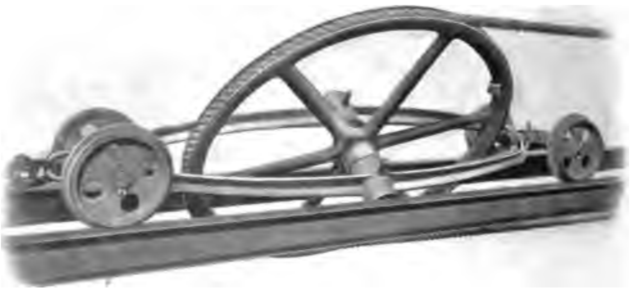
Link-Belt Standard Horizontal Adjustable Tension Carriage

Price List

Including 16 foot pipe track and flanges, weight rod, 100 pounds of tension weight and one pull back sheave.

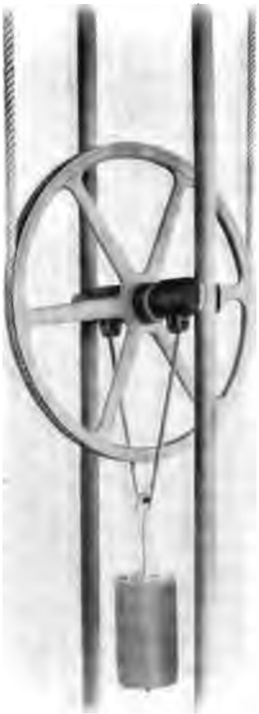
Diameter of Sheave	24 in.	30 in.	36 in.	42 in.	48 in.	54 in.	60 in.
Price	$30 00	$37 50	$42 50	$50 00	$55 00	$75 00	$85 00

Our adjustable tension carriages adapt themselves automatically to any tilt.



Adjustable Tension Carriage with Channel Iron Tracks

Used horizontally. Prices quoted on application.



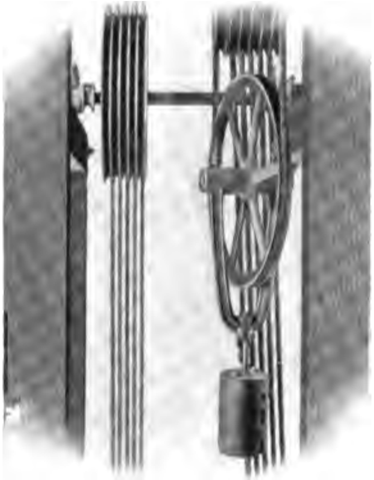
Link-Belt Standard Vertical Tension Carriage

Price List

Including 16 foot pipe tracks with flanges, weight rod and 100 pounds of tension weight.

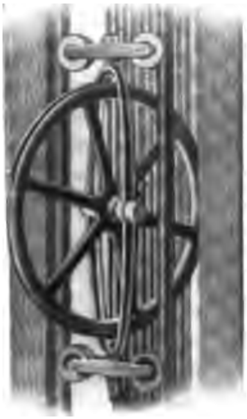
Diameter of Sheave.....	24 in.	30 in.	36 in.	42 in.
Price	$22 50	$27 50	$32 50	$40 00

Diameter of Sheave..	48 in.	54 in.	60 in.
Price................	$45 00	$65 00	$75 00



Link-Belt Plain Vertical Tension Carriage

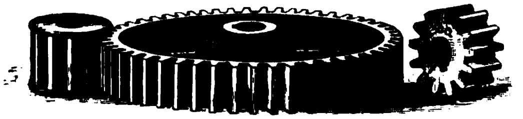
Without tracks. Price list same as for the Standard Vertical Tension Carriage. See above.



Link-Belt Vertical Adjustable Tension Carriage

Price list same as for Standard Horizontal Adjustable Tension Carriage. See opposite page.

Spur Gearing



WE have an enviable reputation as makers of Smooth Gear Castings. We are constantly making new patterns of standard proportions, and shall be pleased to figure on anything required. The following prices cover Gears bored and key-seated or set-screwed:

No. of Pattern	Diam., Inches.	No. of Teeth.	Pitch, Inches.	Face, Inches.	Price.	No. of Pattern	Diam., Inches.	No. of Teeth.	Pitch, Inches.	Face, Inches.	Price.
139	2.55	16	½	1¼	$1 40	157	3.90	14	⅞	2	$1 85
161	2.86	18	½	1¼	1 50	143	4.18	15	⅞	2½	1 90
						192	4.46	16	⅞	2¼	2 05
135	2.39	12	⅝	1½	1 50	145	5.01	18	⅞	2¼	2 25
153	2.98	15	⅝	1½	1 65	11	5.57	20	⅞	2¼	2 40
141	3.98	20	⅝	1½	1 90	125	6.13	22	⅞	2¼	2 60
198	4.77	24	⅝	1½	2 15	181	8.36	30	⅞	2¼	3 40
111	8.95	45	⅝	1½	2 50	196	8.63	31	⅞	2¼	3 55
219	12.93	65	⅝	1½	3 15	197	9.19	33	⅞	2¼	3 75
251	17.90	90	⅝	1½	5 00	124	11.14	40	⅞	2¼	4 40
						12	12.81	46	⅞	2	5 00
18	3.10	13	¾	3	2 50	146	13.93	50	⅞	2¼	5 40
209	3.10	13	¾	1¾	1 65	13	20.89	75	⅞	2¼	7 80
108	3.34	14	¾	1¾	1 75	220	21.72	78	⅞	2¼	8 10
154	5.73	24	¾	1¾	2 30	158	26.18	94	⅞	2	9 70
155	5.97	25	¾	1¾	2 50	190	28.41	102	⅞	2¼	10 75
152	9.31	39	¾	1¾	3 25	132	31.75	114	⅞	2¼	11 90
19	9.55	40	¾	2½	3 75						
156	10.98	46	¾	1¾	4 25	206	3.18	10	1	3½	2 10
134	14.33	60	¾	1¾	4 50	226	3.50	11	1	2½	2 00
						109	3.82	12	1	2½	2 10
224	3.06	11	⅞	2¼	1 25	144	4.14	13	1	2½	2 20
123	3.62	13	⅞	2¼	1 70	151	4.46	14	1	2½	2 30

Spur Gearing—continued

No. of Pattern	Diam., Inches.	No. of Teeth.	Pitch, Inches.	Face, Inches.	Price.
16	4.77	15	1	2½	$2 40
129	5.09	16	1	2½	2 50
107	5.73	18	1	2½	2 70
119	6.37	20	1	2½	2 90
140	6.68	21	1	2½	3 05
14	7.96	25	1	2½	3 50
230	8 28	26	1	2	3 60
207	9.55	30	1	3	4 25
110	11.46	36	1	2½	4 85
137	11.78	37	1	2½	5 00
15	15.92	50	1	2½	6 60
120	20.05	63	1	2½	8 20
159	22.92	72	1	2½	9 25
17	23.87	75	1	2½	9 65
147	28.01	88	1	2½	11 25
148	31.83	100	1	2½	12 75
127	5 01	14	1⅛	3	2 50
214	10 38	29	1⅛	3	4 75
245	3.98	10	1¼	3¼	2 00
225	4.77	12	1¼	2	2 40
122	4.77	12	1¼	3¼	2 50
160	5.17	13	1¼	3¼	2 65
142	5.57	14	1¼	3¼	2.80
113	5.97	15	1¼	3¼	3 00
250	5.97	15	1¼	4	3 50
136	6.37	16	1¼	3¼	3 20
204	6.76	17	1¼	3¼	3 40
106	7.96	20	1¼	3¼	3 90
10	8.35	21	1¼	3¼	4 10
239	10.74	27	1¼	3¼	5 15
118	11.94	30	1¼	3¼	5 70
121	15.95	40	1¼	3¼	$7 50
105	23.87	60	1¼	3¼	11 00
194	29.84	75	1¼	3¼	13 70
112	31.83	80	1¼	3¼	14 55
133	35.81	90	1¼	3¼	16 35
249	35.81	90	1¼	4	21 00
257	5.25	12	1⅜	3½	3 00
258	5.69	13	1⅜	3½	3 20
202	6.13	14	1⅜	3½	3 30
203	42.90	98	1⅜	3½	22 00
162	4.77	10	1½	4	3 15
163	5.73	12	1½	4	3 75
126	6.21	13	1½	5	4 70
138	6.68	14	1½	4	4 25
101	7.16	15	1½	4	4 50
117	7.64	16	1½	4	4 80
102	8.59	18	1½	4½	5 50
253	9.07	19	1½	4	5 75
164	9.55	20	1½	4	5 85
252	10.02	21	1½	4	6 25
165	11.46	24	1½	4	7 00
216	12.44	26	1½	4	7 55
237	13.37	28	1½	3½	8 00
166	13.85	29	1½	4	8 30
256	15.28	32	1½	4	9 50
104	17.19	36	1½	4	10 25
167	21.49	45	1½	4	12 65
116	21.96	46	1½	4	12 90
103	23.87	50	1½	4	14 00
215	25.30	53	1½	4	14 85
217	26.74	56	1½	4	15 65

Spur Gearing—continued

No. of Pattern	Diam., Inches.	No. of Teeth.	Pitch, Inches.	Face, Inches.	Price.
130	28.65	60	1½	4	$16 75
131	34.38	72	1½	4	20 00
128	39.63	83	1½	4	23 00
210	45.88	96	1½	4	30 00
199	53.00	111	1½	4	40 00
168	6.68	12	1¾	5	5 00
169	7.24	13	1¾	5	5 35
149	7.80	14	1¾	5	5 80
170	8.36	15	1¾	5	6 25
171	8.91	16	1¾	5	6 75
172	10.03	18	1¾	5	7 55
173	13.37	24	1¾	5	10 10
174	20.05	36	1¾	5	15 35
205	22.28	40	1¾	5	17 00
175	28.97	52	1¾	5	25 00
150	47.91	86	1¾	5	45 00
176	7.64	12	2	6	6 50
177	8.28	13	2	6	7 40
115	8.91	14	2	6	8 20
185	10.19	16	2	6	9 75
187	12.10	19	2	6	12 25
178	15.28	24	2	6	16 30
244	16.55	26	2	6	18 00
241	17.82	28	2	6	19 60
191	19.10	30	2	6	21 15
188	22.28	35	2	6	25 20
179	30.56	48	2	6	35 65
186	37.56	59	2	6	44 50
195	40.74	64	2	6	50 00
114	43.93	69	2	6	60 00

No. of Pattern	Diam., Inches.	No. of Teeth.	Pitch, Inches.	Face, Inches.	Price.
189	47.75	75	2	6	$70 00
236	66.21	104	2	6	90 00
227	8.60	12	2¼	7½	8 25
180	10.03	14	2¼	6½	10 00
200	11.46	16	2¼	6½	12 50
228	25.78	36	2¼	7	35 00
211	35.81	50	2¼	8½	60 00
201	45.84	64	2¼	6½	55 00
222	9.66	12	2½	7½	18 00
243	11.94	15	2½	7	25 00
242	29.44	37	2½	6	34 50
193	23.87	30	2½	7	35 00
223	33.45	42	2½	7½	75 00
235	10.50	12	2¾	8½	17 00
238	11.38	13	2¾	8½	18 00
259	16.63	19	2¾	8	30 00
213	22.76	26	2¾	8	45 00
212	66.52	76	2¾	8	120 00
208	13.37	14	3	8	25 00
229	19.12	20	3	10	60 00
182	23.87	25	3	8	60 00
183	53.48	56	3	8	120 00
240	96.45	101	3	8	300 00
231	18.93	17	3½	13	80 00
233	30.08	27	3½	6	55 00
234	31.19	28	3½	6	60 00
232	120.32	108	3½	12	500 00

Bevel Gearing

No. of Patt.	Diameter, Inches.	No. of Teeth.	Face, Inches.	Pitch, Inches:	Backing, Inches.	Proportion.	Price.
424 423	5.01 3.10	21 13	1½	¾	¾ ⅜ or 1 5/16	1.6 to 1	$1 90 1 60
422 421	8.12 4.47	34 20	2	¾	⅞ ½	1.7 to 1	2 60 1 95
42 41	10.03 5.01	42 21	2	¾	1½ ⅝	2 to 1	2 80 2 00
450 449	10.74 3.58	45 15	1¾	¾	1¼ ¼	3 to 1	2 75 1 75
444 443	13.37 3.34	56 14	2	¾	2⅜ ⅝ or 1¼	4 to 1	4 00 1 75
464 463	14.32 12.10	45 38	2½	1	1½ 1¼	1.2 to 1	5 25 4 60
468 467	21.33 15.92	67 50	2½	1	1¾ 1⅛	1⅓ to 1	7 40 5 75
489 490	9.87 6.68	31 21	2¼	1	1½ ¾	1½ to 1	3 90 2 95
448 447	12.10 7.96	38 25	2½	1	1¼ 11/16	1½ to 1	4 60 3 35
428 427	18.14 12.10	57 38	2½	1	1⅝ 1	1½ to 1	6 40 4 60
456 455	10.19 5.09	32 16	2½	1	1⅝ ⅜	2 to 1	4 00 2 50
442 441	15.28 7.64	48 24	2½	1	2¼ ⅞	2 to 1	5 55 3 25
454 453	19.10 9.55	60 30	2½	1	2 1⅛	2 to 1	6 75 3 80
402 401	17.51 6.37	55 20	2½	1	2⅛ ⅝	2¾ to 1	6 25 2 85
430 429	15.28 5.09	48 16	2½	1	2½ ⅜	3 to 1	5 55 2 50
4011 4012	13.05 3.82	41 12	2½	1	2¼ ⅜	3.4 to 1	5 50 3 00
44 43	23.87 6.05	75 19	2½	1	3 1⅛	4 to 1	8 15 2 75
4009 4010	15.92 3.82	50 12	2½	1	2¼ ⅜	4.2 to 1	6 00 3 00

Bevel Gearing—continued

No. of Patt.	Diameter, Inches.	No of Teeth.	Face, Inches.	Pitch, Inches.	Backing, Inches.	Proportion.	Price.
482	10.35	26	3	1¼	1¾	1.4 to 1	$4 75
481	7.56	19			¾		3 60
486	12.73	32	3¼	1¼	2	1⅓ to 1	5 65
485	9.55	24			1⅛		5 40
436	10.74	27	3	1¼	1½	2 to 1	4 90
435	5.17	13			½		2 65
420	15.92	40	3	1¼	2½	2 to 1	7 00
419	7.96	20			⅞		3 80
46	23.87	60	3	1¼	2¼	2 to 1	10 10
45	12.33	31			1⅜		5 50
472	27.45	69	3¼	1¼	2⅝	2 to 1	11 50
471	13.53	34			1⅛		6 00
48	30.24	76	3¼	1¼	2¾	2 to 1	12 50
47	15.12	38			1		6 65
418	30.24	76	3¼	1¼	3	2½ to 1	12 50
417	11.94	30			1		5 35
484	15.92	40	3¼	1¼	1¾	2⅔ to 1	7 00
483	5.97	15			⅜		3 00
426	29.44	74	3¼	1¼	2⅞	3 to 1	12 30
425	9.95	25			¾		4 55
434	23.87	60	3	1¼	2⅝	4 to 1	10 10
433	5.97	15			½		3 00
470	30.24	76	3¼	1¼	3⅛	4½ to 1	12 50
469	6.76	17			9/16		3 30
412	20.01	48	3½	1⅜	2½	1 1-7 to 1	9 55
411	18.38	42			1⅞		8 80
474	24.07	55	3½	1⅜	2½	1¼ to 1	11 35
473	19.26	44			1⅝		9 20
410	47.71	109	3½	1⅜	6	6 to 1	22 00
409	7.88	18			⅜		4 10
478	19.10	40	4	1½	2¼	1⅓ to 1	10 40
477	14.32	30			2⅛		7 95
414	24.83	52	4	1½	2½	1⅓ to 1	13 35
413	18.60	39			1½		10 15
488	17.19	36	4	1½	1⅞	1⅝ to 1	9 40
487	10.50	22			1⅛		6 00

Bevel Gearing—continued

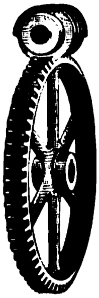
No. of Patt.	Diameter, Inches.	No of Teeth.	Face, Inches.	Pitch, Inches.	Backing, Inches.	Proportion.	Price.
446 445	30.56 15.28	64 32	4	1½	3 1¼	2 to 1	$16 25 8 40
452 451	21.49 7.16	45 15	4	1½	2⅜ ⅝	3 to 1	11 65 4 25
4002 4001	30.08 10.03	63 21	4	1½	4¼ 1	3 to 1	16 00 5 75
498 497	35.81 11.94	75 25	4	1½	5 1	3 to 1	19 00 6 75
462 461	28.65 7.64	60 16	4	1½	3½ ½	3¾ to 1	15 30 4 50
4006 4005	32.94 7.16	69 15	4	1½	5¼ 1¼	4.6 to 1	17 50 4 25
480 479	43.93 6.21	92 13	4	1½	6 ¼	7 to 1	33 25 3 75
496 495	21.72 10.58	39 19	5	1¾	1¾ 1⅝	2 to 1	15 25 7 15
460 459	25.07 11.14	45 20	5	1¾	3¼ 1	2¼ to 1	17 75 7 60
458 457	34.55 11.14	62 20	5	1¾	3⅞ 1	3.1 to 1	24 60 7 60
4008 4007	42.02 14.01	66 22	7	2	3½ 2½	3 to 1	38 00 12 00
416 415	40.11 10.03	56 14	7	2¼	6¼ ¼	4 to 1	44 00 8 25
404 403	48.00 10.82	67 15	5	2¼	6 3/16 1	4½ to 1	45 00 8 25
408 407	21.49 11.94	27 15	5	2½	5 1¼	1.8 to 1	22 50 12 00
438 437	33.42 11.14	42 14	8	2½	6½ ⅞	3 to 1	42 00 10 00
4004 4003	42.02 22 76	48 26	7½	2¾	5¾ 2½	1.8 to 1	70 00 30 00
494 493	45.84 12.41	48 13	5	3	5½ ¾	3.7 to 1	70 00 12 00
406 405	59.04 17.88	53 16	9	3½	9½ 3¼	3⅓ to 1	120 00 40 00

Mitre Gearing

No. of Pattern.	Diameter, Inches.	No. of Teeth.	Face, In.	Pitch, In.	Backing.	Price.
601	4.30	18	1¼	¾	1½	$1 80
603	10.03	42	1¼	¾	1⅛	2 80
612	8.36	30	2	⅞	1½	2 80
602	6.05	19	2¼	1	⅝	2 30
61	7.96	25	2¼	1	1	2 60
67	11.78	37	2¼	1	1	3 60
64	14.01	44	2½	1	1¼	4 25
62	10.74	30	2½	1⅛	1⅛	3 50
608	19.70	55	3	1⅛	1½	8 00
609	9.95	25	3¼	1¼	1	4 25
63	14.32	36	3	1¼	2	6 00

No. of Pattern.	Diameter, Inches.	No. of Teeth.	Face, In.	Pitch, In.	Backing.	Price.
614	15.52	39	2½	1¼	1¾	$6 00
65	15.92	40	3	1¼	1½	6 60
605	19.10	48	3¼	1¼	1¾	8 00
69	26.26	66	3¼	1¼	2	11 00
68	33.82	85	3¼	1¼	2	14 00
616	9.07	19	3	1½	1⅜	4 25
604	20.05	42	4	1½	2	10 40
66	26.26	55	4	1½	2	15 00
613	13.37	24	5	1¾	2½	8 50
615	18.46	29	6	2	2⅛	15 00
606	24.19	38	6	2	2⅛	19 00
610	31.83	50	6	2	2⅛	28 00
617	13.53	17	4	2½	2½	9 00
607	42.97	54	7	2½	3¼	40 00
611	23.87	25	8½	3	3¾	38 00

Worms and Worm Gears



No. of Pattern.	No. of Teeth.	Diameter Inches.	Face, Inches.	Pitch, Inches.	Price.	Additional Price for Housings.	Remarks.
307 308	28 Worm	5.57 2 3/16	1 —	⅝	$2 75 2 60		Right
317 318	24 Worm	5.73 2.50	1¼ —	¾ —	3 00 2 85		Right
319 320	24 Worm	5.73 2.50	1¼ —	¾ —	3 00 2 85		Left
30 32	24 Worm	6.67 3.00	1⅜ —	⅞	3 30 3 30		Right
31 32	36 Worm	10 03 3.00	1⅜ —	⅞	3 50 3 30	$70 00	Right
305 306	36 Worm	10.03 3.00	1⅜ -	⅞	3 50 3 30	70 00	Left
33 34	62 Worm	19.74 4.50	2 —	1	8 90 5 50		Right
311 312	20 Worm	9.60 4.50	2½ —	1½	6 20 6 00		Right
301 302	30 Worm	14.35 6.00	3¼ —	1½	11 75 10 95	90 00	Right
315 316	30 Worm	14.35 6.00	3¼ -	1½	11 75 10 95	90 00	Left
303 304	30 Worm	14.35 6.00	3¼ —	1½	14 00 13 40	90 00	Double Thread Worm
35 36	50 Worm	27.87 7.50	4 —	1¾	27 05 13 20	140 00	Right
309 310	50 Worm	27.87 7.50	4 —	1¾	30 00 14 50	140 00	Double Thread Worm
37 38	60 Worm	38.21 9.00	5 —	2	41 80 17 50	240 00	Right
313 314	48 Worm	38.21 9.00	5 —	2½	45 00 19 50	240 00	Double Thread Worm

Core Gearing

Core Gearing is that form of gearing where one of the pair has wooden teeth.

All our Core Gears have their teeth dressed by a patent machine, which insures uniformity and mathematically correct shape of teeth, and we guarantee all gears to be absolutely perfect.

These gears will be found strong, smooth, quiet running, and very durable, and as the principal wear is upon the hard, wooden teeth, the wheels are so constructed that the cogs may be renewed at a trifling expense.

Spur Core Gears and Pinions

No. of Pattern.	Diameter, Inches.	No. of Teeth.	Face, Inches.	Pitch, Inches.	Remarks.
801	10.82	17	6	2	Pinion
87	13.37	21	6	2	Pinion
83	14.	22	7½	2	Pinion
803	15.91	25	8½	2	Pinion
89	16.59	26	5	2	Pinion
84	28.65	45	7	2	Mortise
802	59.84	94	5	2	Mortise
86	72.57	114	4½	2	Mortise
804	86.58	136	8	2	Mortise
85	38.99	49	8	2¼	Mortise
82	60.18	63	12	3	Mortise
81	29.60	31	12½	3	Pinion

In ordering Gears, give pattern number and pitch.

Bevel Mortise Gears and Pinions

No. of Pattern.	Diameter, Inches.	No of Teeth.	Face, Inches.	Pitch, Inches.	Backing, Inches.	Proportion.	Remarks.
52 51	30.57 7.69	64 16	4 4¼	1½	3¾ ½	4 to 1	Mortise Pinion
56 55	23.97 13.96	43 25	4½ 4¾	1¾	4¼ 1 3/16	1¾ to 1	Mortise Pinion
506 505	20.05 15.03	36 27	6 6¼	1¾	3 1½	1⅓ to 1	Mortise Pinion
510 495	21.69 10.58	39 19	4¾ 5	1¾	1¾ 1	2 to 1	Mortise Pinion
502 501	30.55 22.91	48 36	7 7½	2	3¾ 2¼	1⅓ to 1	Mortise Pinion
504 503	56.03 14.05	88 22	7½ 7½	2	13 ¾	4 to 1	Mortise Pinion
54 53	57.31 20.09	80 28	8 8½	2¼	6½ 1⅝	2 5/7 to 1	Mortise Pinion
508 507	42.97 27.21	60 38	8 8½	2¼	4⅜ 3¼	30 to 19	Mortise Pinion
58 57	54.13 33.45	68 42	9 9½	2½	6 2	1⅔ to 1	Mortise Pinion

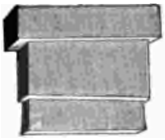
Mitre Mortise Gears and Pinions

No. of Pattern.	No. of Teeth.	Diameter, Inches.	Face, Inches.	Pitch, Inches.	Backing, Inches.	Remarks.
77	38	15.14	3½	1¼	2¼	Mortise
78	38	15.14	3¼		1¾	Pinion
701	38	18.16	5	1½	2¾	Mortise
702	38	18.16	5¼		1½	Pinion
73	50	23.89	5	1½	2¾	Mortise
74	50	23.89	5¼		2¾	Pinion
75	50	27.87	6	1¾	2¼	Mortise
76	50	27.87	6¼		3½	Pinion
71	44	28.04	6	2	3¾	Mortise
72	44	28.04	6¼		2	Pinion
705	60	38.20	7	2	3	Mortise
706	60	38.20	7½		4	Pinion
703	61	43.68	8	2¼	4¼	Mortise
704	61	43.68	8½		3½	Pinion

In ordering Gears, give pattern number and pitch.

Hard Maple Cogs

For Core Gears—Spur or Bevel



Face in inches	4	5	6	7	8	9	10	11	12
Price Cogs, each	$0 12	15	18	21	24	30	38	45	54
Filling and Trimming Mortise Wheels, per tooth	$0 38	42	45	50	60	75	90	1 00	1 10
Dressing Iron Pinion Teeth—one side only, per tooth	$0 25	30	35	40	45	50	60	70	80
Teeth Dressed both sides	$0 38	45	53	60	68	75	90	1 05	1 20

Paper and Iron Friction Gearing

BEVEL FRICTIONS

SPUR FRICTIONS

A SPUR Paper Friction will transmit slightly less power than a single belt pulley of same diameter and face. Owing to the difficulty of maintaining a perfect contact, Bevel Frictions are suitable for very light work only.

The paper friction should drive in all cases.

Spur Paper Friction Gears

Face in Inches—Prices Each

Diameter, Inches.	4	5	6	7	8	9	10
6	$3 28	$3 78	$4 30	$4 80	$5 32	.....	......
7	4 00	4 62	5 28	5 90	6 58	.....	......
8	4 58	5 28	6 04	6 76	7 52	.....	......
9	5 40	6 22	7 06	7 86	8 70	$9 54	......
10	6 62	7 60	8 60	9 58	10 58	11 66	$12 64
12	8 29	9 50	10 72	11 96	13 20	14 52	15 17
14	10 74	12 28	13 84	15 38	16 96	18 58	20 16
16	.....	14 58	16 42	18 24	20 06	22 02	23 84
18	.....	16 98	19 08	21 18	23 26	25 48	27 58
20	.....	21 36	23 76	26 16	28 54	31 06	33 46
22	.....	26 60	29 34	32 06	34 78	37 66	40 44
24	.....	30 58	33 64	36 70	39 74	43 00	46 04
26	....	33 72	36 98	40 16	43 48	46 94	50 18

Mitre Friction Gears

Prices on Application

Diam., Inches.	Face Inches.	Max. Bore, Inches.	Diam., Inches.	Face, Inches	Max. Bore, Inches.	Diam., Inches	Face, Inches.	Max. Bore, Inches.	Diam., Inches.	Face, Inches.	Max. Bore, Inches.
6	$2\frac{1}{4}$	$1\frac{7}{16}$	12	$3\frac{1}{2}$	$2\frac{11}{16}$	18	5	$2\frac{7}{16}$	24	$6\frac{3}{4}$	$6\frac{15}{16}$
8	$3\frac{1}{4}$	$1\frac{15}{16}$	12	5	$2\frac{7}{16}$	18	$5\frac{1}{2}$	$2\frac{15}{16}$	26	$8\frac{3}{4}$	$6\frac{15}{16}$
9	$2\frac{3}{4}$	$2\frac{15}{16}$	14	6	$2\frac{7}{16}$	18	$6\frac{1}{2}$	$3\frac{15}{16}$	26	11	$7\frac{11}{16}$
10	$3\frac{1}{2}$	$2\frac{3}{16}$	16	$4\frac{3}{4}$	$2\frac{15}{16}$	20	$5\frac{1}{2}$	$3\frac{15}{16}$	30	$12\frac{3}{4}$	$7\frac{15}{16}$
10	$4\frac{1}{2}$	$1\frac{15}{16}$	16	$6\frac{3}{4}$	$3\frac{7}{16}$	20	$10\frac{1}{2}$	$2\frac{15}{16}$	42	7	24

Bevel Friction Gears

Gaining Speed

Proportion 1¼ to 1 Diam. Face.	Proportion 2 to 1 Diam. Face.	Proportion 2½ to 1 Diam. Face.	Proportion 3 to 1 Diam. Face.	Proportion 4 to 1 Diam. Face.	Proportion 36 to 26⅜ Diam. Face.
15 x 4½ 12 x 4	16 x 4½ 8 x 4	10 x 3¾ 4 x 3	15 x 4½ 10 x 4	24 x 4½ 6 x 4	36 x 9 26⅜ x 8½
20 x 5¾ 16 x 5	18 x 5½ 9 x 4	Proportion 1⅝ to 1 Diam. Face.	18 x 5¼ 12 x 4½	40 x 8 10 x 7	Proportion 20 to 7 Diam. Face.
Proportion 1½ to 1 Diam. Face.	20 x 5½ 10 x 5		21 x 4½ 7 x 4		
13½ x 4 9 x 3⅜	24 x 6½ 12 x 6	16 x 4⅝ 10 x 4	24 x 6¾ 16 x 6		20 x 4½ 7 x 4
18 x 5¼ 12 x 4½			24 x 8¾ 16 x 8		
36 x 9½ 24 x 9			36 x 9½ 24 x 9		
			48 x 10½ 32 x 10		

Bevel Friction Gears

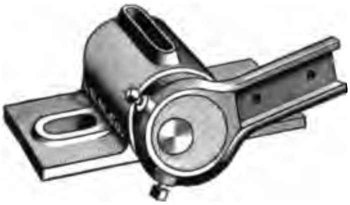
Reducing Speed

Proportion 1 to 1¼ Diam. Face.	Proportion 1 to 1½ Diam. Face.	Proportion 1 to 2 Diam. Face.	Proportion 1 to 3 Diam. Face.	Proportion 1 to 3⅝ Diam. Face.	Proportion 1 to 4 Diam. Face.
10 x 4 12½ x 4	8 x 3½ 12 x 3	14 x 8 28 x 7½	6 x 4½ 18 x 3½	5 x 5 18 x 4	5 x 4¾ 20 x 4
18 x 5¾ 22½ x 5	Proportion 1 to 1⅔ Diam. Face.	16 x 9 32 x 8	8 x 5¾ 24 x 5	Proportion 10½ to 36	7 x 4½ 28 x 4
Proportion 1 to 1⅓ Diam. Face.	6 x 4½ 10 x 4	20 x 11 40 x 10	10 x 6¾ 30 x 6	10½ x 6 36 x 6	9 x 9 36 x 8
	9 x 5¼ 15 x 4	24 x 15 48 x 14	12 x 8¾ 36 x 8		
12 x 5⅛ 16 x 4⅝	Proportion 1 to 2 Diam. Face.	Proportion 15 to 32 Diam. Face.	14 x 10½ 42 x 9½		
18 x 5¾ 22 x 5	6 x 3 12 x 2½	15 x 9 32 x 9			
Proportion 1 to 1½	6 x 4½ 12 x 4	Proportion 1 to 2⅜ Diam. Face.			
5 x 2½ 7½ x 1¾	8½ x 4½ 17 x 4	10 x 5¾ 24 x 6			
12 x 5½ 18 x 4½	10 x 4½ 20 x 4				
16 x 6¾ 24 x 5¾	10 x 5¾ 20 x 5				
20 x 8½ 30 x 7½	12 x 6¾ 24 x 6				

Eccentric and End-Thrust Boxes

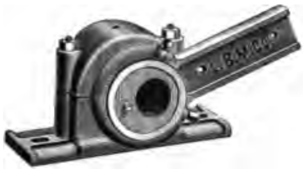
For use with Frictional Gearing

The Eccentric Boxes have babbitted bearings and are of two styles—Rigid and Ball and Socket. The latter, while more expensive in first cost, adjust themselves to the proper line of contact between the gears, and are self-oiling.



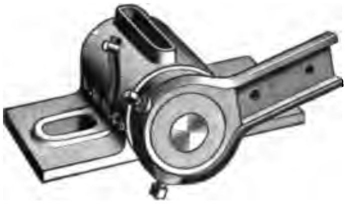
ECCENTRIC BOX

USED FOR ENGAGING AND DISENGAGING SPUR FRICTION GEARING.



ECCENTRIC BOX

BALL AND SOCKET AND SELF OILING.



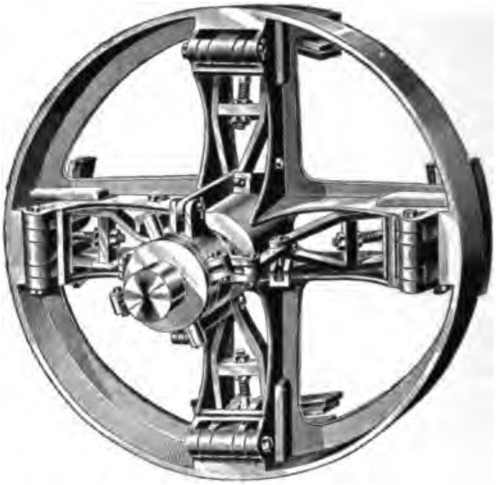
PATENT END-THRUST BOX

USED FOR ENGAGING AND DISENGAGING BEVEL AND MITER FRICTION GEARING.

Size of Box.	PRICES.		
	Eccentric Box, Rigid.		End-Thrust Box, Rigid.
1 3/16	$7 00		$8 25
1 7/16	8 25		9 50
1 11/16	9 50		11 00
1 15/16	11 00		12 75
2 3/16	12 90		15 00
2 7/16	14 50		16 75
2 11/16	16 60		19 50
2 15/16	18 75		21 75
3 3/16			
3 7/16			
3 11/16			
3 15/16			
4 7/16			
4 15/16			

For dimensions, see Index.

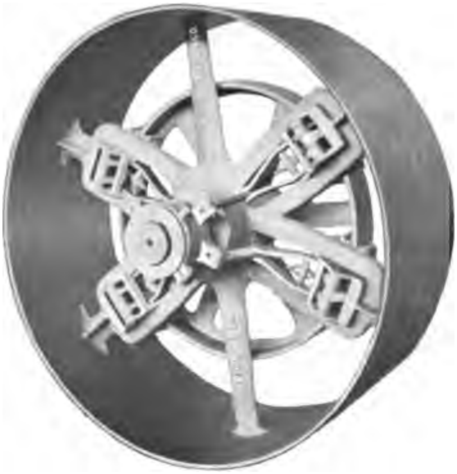
Ewart Guaranteed Friction Clutch



PATENTED

FRICTION Clutches of this general type—wood filled shoes gripping a circular rim—are now recognized as the standards for excellence, and are almost exclusively employed where the work is severe or any considerable amount of power is transmitted.

The Ewart GUARANTEED Clutch possesses the following advantages, most of which are entirely distinctive, and which are combined in no other clutch :



PULLEY WITH CLUTCH MECHANISM CAST IN

FIRST.—The gripping arms are connected and supported by a *flanged rim*, which equalizes the starting strains, thus insuring the greatest possible strength and stiffness. This rim completely shields the levers and working parts. In other forms of clutches of this general type, breakages of the unconnected and independent arms, when starting up, are frequent, occasioned by an unequal adjustment of the gripping shoes, one pair of jaws taking hold a moment in advance of the others, thus throwing the entire strain suddenly upon one arm of the clutch; furthermore, great resistance to the air is offered at high speeds, and the exposed levers are most dangerous.

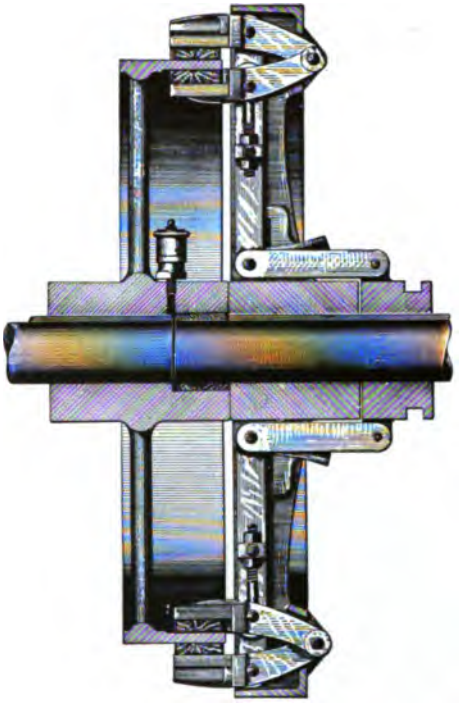
SECOND.—The powerful mechanical device—*the toggle*—is used to actuate the gripping shoes, and all the levers and links are made of wrought iron of simplest form.

THIRD.—*No springs* are employed. The clutch is thrown into and out of engagement positively, and absolutely locked in either position. It is impossible for it to engage itself even partially by centrifugal force, as is the tendency with many clutches.

FOURTH.—*The clutch* can be split as readily as an ordinary pulley and in a similar manner.

FIFTH.—The *adjustment* is most simple. The only parts ever needing renewal are the wooden shoes, and the jaws grip with uniform pressure.

SIXTH.—It occupies *minimum space* on shaft. The construction is such that when desired, the clutch mechanism may be cast as a part of pulley or sheave, and the clutch rim used as a driver, as shown by cut on opposite page.



CROSS SECTION

Prices of Ewart Guaranteed Friction Clutch Couplings

No. of Clutch.	No. of Arms.	Horse-Power at 100 Rev.	Max. Bore, Inches.	Price.	No. of Clutch.	No. of Arms.	Horse-Power at 100 Rev.	Max. Bore, Inches.	Price.
18	2	9	$2\frac{15}{16}$	$75 00	36	6	105	8	$275 00
20	2	10	$3\frac{15}{16}$	75 00	42	4	115	10	285 00
24	2	15	$4\frac{15}{16}$	90 00	48	4	140	10	350 00
20	4	20	$3\frac{15}{16}$	100 00	42	6	170	10	400 00
30	2	25	6	115 00	48	6	205	10	475 00
24	4	30	$4\frac{15}{16}$	125 00	54	4	240	12	555 00
36	2	35	8	140 00	54	6	360	12	625 00
30	4	50	6	160 00	66	4	375	18	875 00
36	4	70	8	200 00	66	6	560	18	950 00

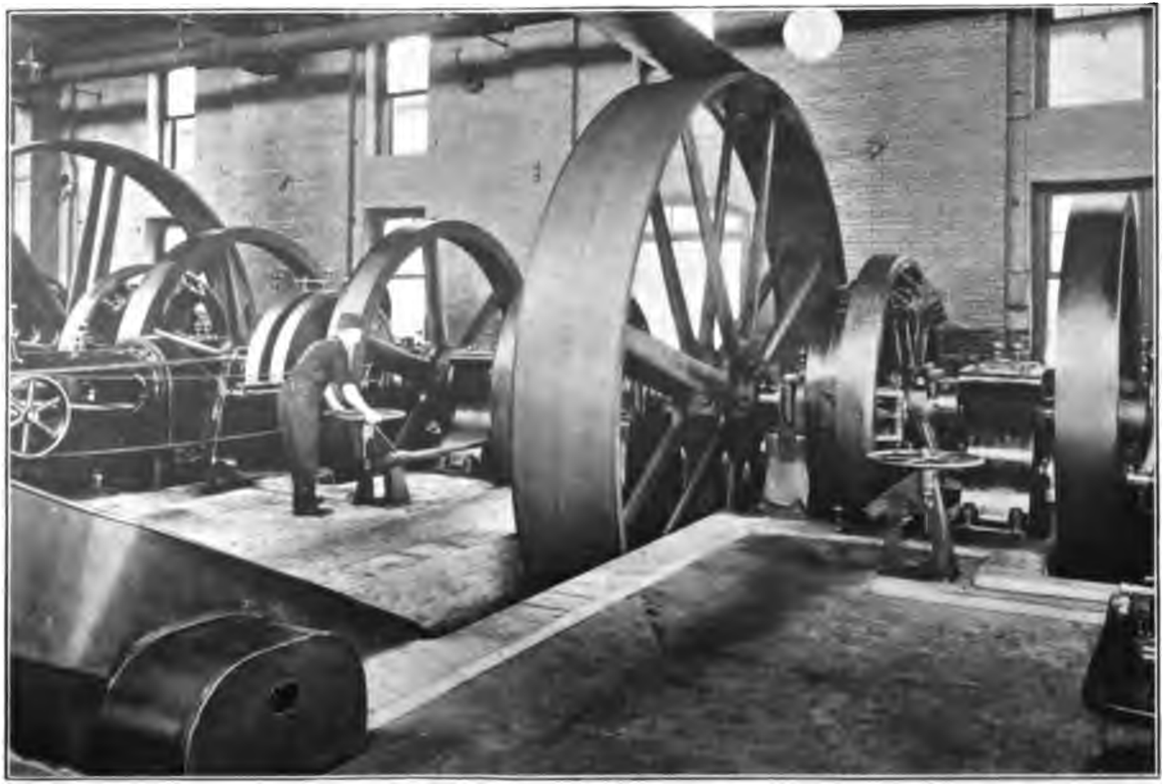
For list of parts and table of dimensions, see Index.

On Clutches from 72 inch to 96 inch, specifications and prices will be made on application.

All Clutch Couplings and Clutch Pulleys are provided with Anti-Friction Bushings.

We furnish Shipper Yoke arranged to receive wood or iron lever. In ordering, state whether fulcrum is on opposite or same side of shaft as lever. Former style sent unless otherwise ordered.

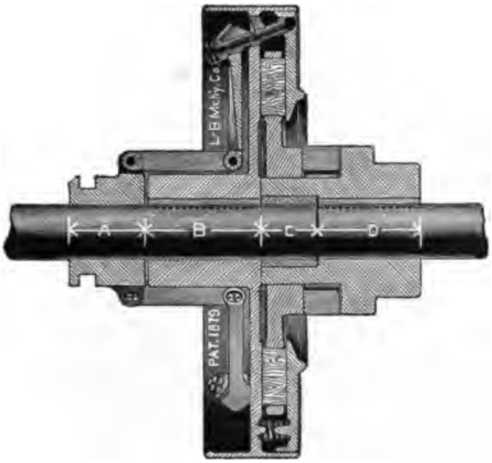
Prices on Clutch Pulleys quoted on receipt of the following particulars: Diameter and face of pulley; diameter and speed of shafting; kind, width, and thickness of belt; and approximate estimate of horse-power you wish to transmit; does clutch drive pulley, or pulley drive clutch?



EWART GUARANTEED FRICTION CLUTCHES

SHOWING TWO OF FOUR 72-INCH DIAMETER CLUTCHES EACH CAPABLE OF TRANSMITTING 800 H. P. AT 100 REVOLUTIONS PER MINUTE, FURNISHED THE ATLANTIC REFINING CO., PHILADELPHIA.

The Link-Belt Disk Friction Clutch



HAS the friction blocks of wood fastened in a disk, and so arranged that both ends of the grain are utilized. It is admirably adapted for use where diameters are small and work is comparatively light, being frequently employed with sprocket wheels, gears, etc. Many hundreds of these clutches are in daily service, giving the best of satisfaction.

Price List of Clutch Couplings

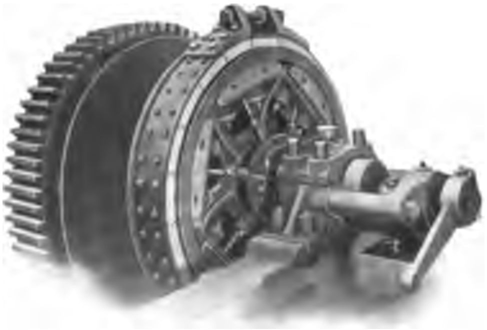
The number of the Clutch indicates the outside diameter of the rim.
All Clutch Couplings and Clutch Pulleys are provided with Anti-Friction Bushings.

No. of Clutch.	Price Including Lever.	H. P. at 100 Rev.	Maximum Bore.	SPACE ON SHAFT.		
				A.	B.	D.
10	$45 00	3	$1\frac{15}{16}$	$3\frac{3}{4}$	3	$3\frac{1}{4}$
12	55 00	5	$2\frac{7}{16}$	$4\frac{1}{4}$	$3\frac{1}{2}$	$3\frac{1}{4}$
14	60 00	7	$2\frac{15}{16}$	$4\frac{3}{4}$	$3\frac{3}{4}$	$3\frac{3}{4}$
16	75 00	10	$3\frac{7}{16}$	$5\frac{1}{2}$	4	$4\frac{1}{4}$

Dimension "C" is governed by the diameter of shaft, as given below:
3 in. for shafts up to $1\frac{7}{16}$
4 in. " " $1\frac{11}{16}$ to $2\frac{7}{16}$
5 in. " " $2\frac{11}{16}$ to $3\frac{7}{16}$

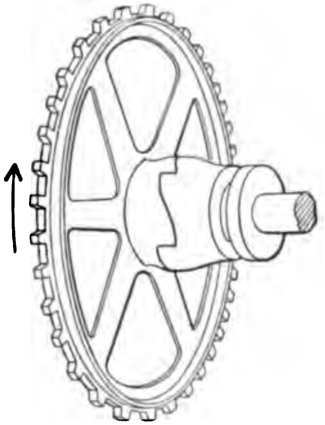
The Link-Belt "Umbrella" Friction Clutch

Employed for operating Link-Belt hoisting drums. It is quick and powerful in action and designed to resist the severe service incident to work of this character. The wood friction shoes expand against the inner surface of a ring, as shown. On the outer surface of this ring, a wood-filled brake band, for bringing the drum to a quick stop, is often applied, as also indicated.



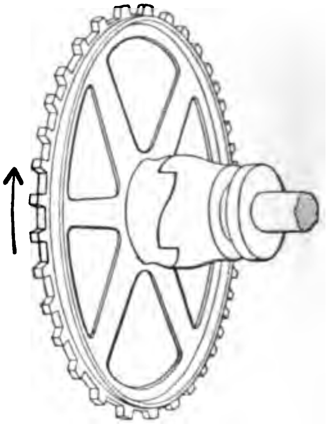
Different Arrangements of Spiral Jaw Clutches.

A



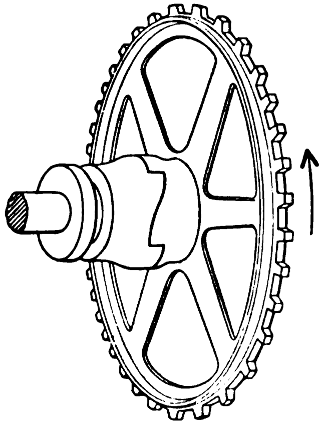
Clutch Drives Wheel
Right-hand Clutch.

B



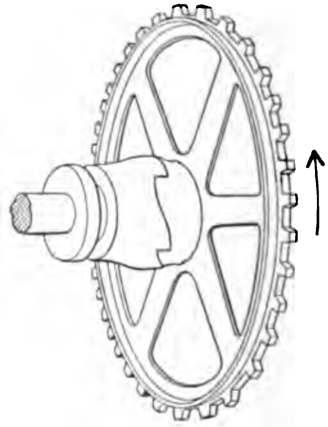
Wheel Drives Clutch
Left-hand Clutch.

C



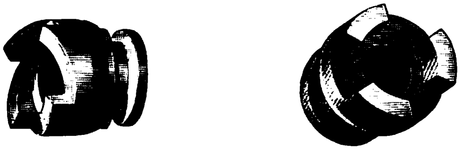
Clutch Drives Wheel
Left-hand Clutch.

D



Wheel Drives Clutch
Right-hand Clutch.

Jaw Clutches



SPIRAL AND SQUARE TOOTH CLUTCHES

Spiral clutches made right and left hand. A right-hand Clutch drives when turning to the right as you face the smooth end.

SPIRAL CLUTCH COUPLING

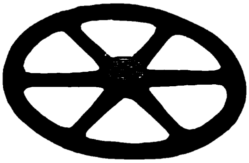
SQUARE CLUTCH COUPLING

Prices of Spiral and Square Jaw Clutches and Clutch Couplings

No.	Size, Inches.	Clutch, Price.	Clutch Coupling.	Remarks.	No.	Size, Inches.	Clutch, Price.	Clutch Coupling.	Remarks.
3	15/16	$2 25	$4 30		7½	3 3/16	$9 45	$18 20	
3½	1 3/16	2 85	5 50		8	3 7/16	10 50	20 20	
4	1 7/16	3 50	6 80		8½	3 11/16	11 60	22 30	
4½	1 11/16	4 20	8 10		9	3 15/16	12 75	24 50	
5	1 15/16	4 95	9 60		10	4 7/16	15 20	29 30	
5½	2 3/16	5 75	11 10		11	4 15/16	17 85	34 50	
6	2 7/16	6 60	12 80		12	5 7/16	20 70	40 00	
6½	2 11/16	7 50	14 50		13	5 15/16	23 75	46 00	
7	2 15/16	8 45	16 30						

When ordering Clutches to be used with Sprocket Wheels, Pulleys, or Gears, be careful to state whether the clutch connects with right or left hand side of wheel when top of same is turning from you; also, whether wheel or clutch is to drive.

Hand Wheels

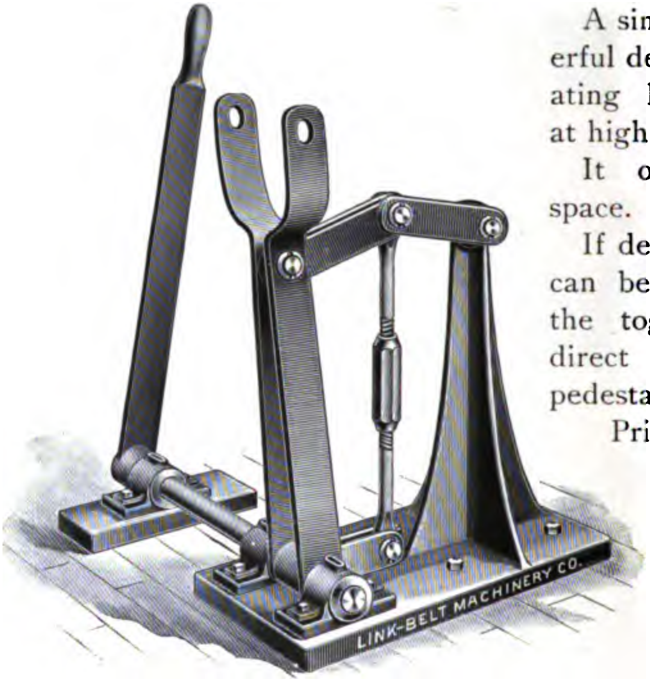


HAND WHEELS, BORED AND SET SCREWED OR KEY SEATED.

Extreme Diameter, Inches.	Diameter of Rim, Inches.	Price.	Extreme Diameter, Inches.	Diameter of Rim, Inches.	Price.
5¼	⅞	$1 00	12	1⅛	$2 40
6	⅞	1 20	..	...	....
7	⅞	1 40	16	1 1/16	2 80
8	⅞	1 60	18	1	3 00
9	⅞	1 80	20	1¼	3 20
10	1	2 10	24	1 5/16	3 80

Link-Belt Double Toggle Clutch Lever

Patented


LINK-BELT MACHINERY CO.

A simple and powerful device for operating large clutches at high speed.

It occupies little space.

If desired the post can be omitted and the toggle attached direct to hanger or pedestal.

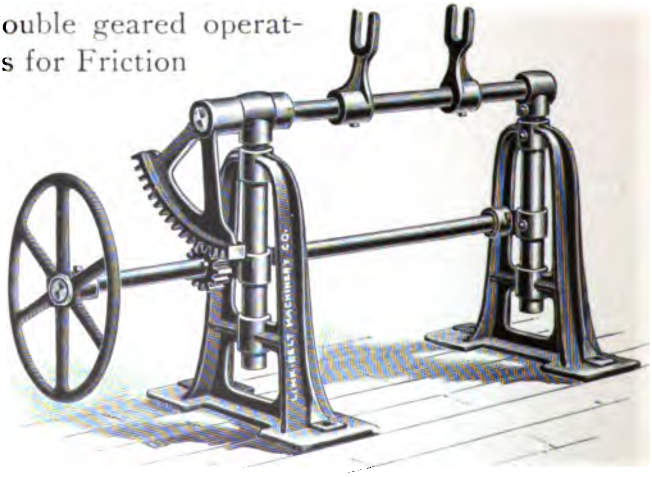
Price $50.00.

Single-Geared Operator

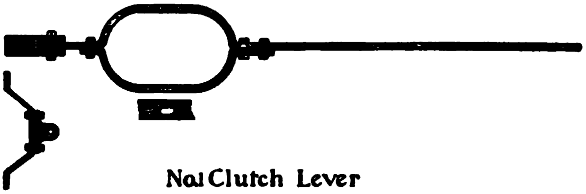
Single and double geared operating mechanisms for Friction Clutches.

Made in a variety of styles to suit conditions.

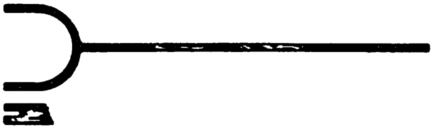
Prices quoted on application.


LINK-BELT MACHINERY CO.

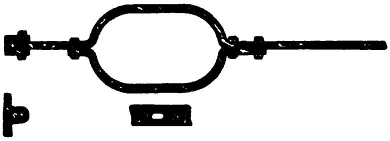
Operating Levers for Jaw Clutches



No. 1 Clutch Lever



No. 2 Clutch Lever



No. 3 Clutch Lever

Price List of Operating Levers

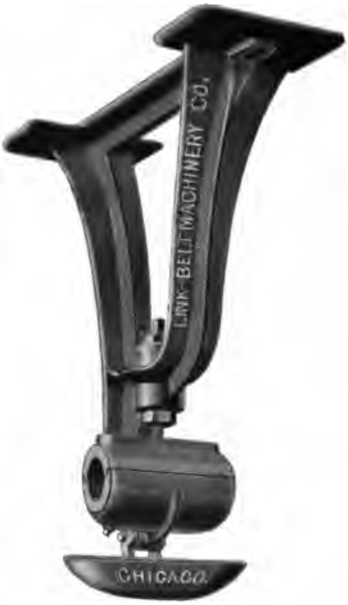
Including Clutch Bands

No. of Jaw Clutch.	Inside Diameter of Clutch Band, Inches.	Style No. 1.	Style No. 2.	Style No. 3.
3½	2½	$5 00	$3 00	$3 60
4	2½	5 00	3 00	3 60
4½	3	5 40	3 35	4 00
5	3½	5 00	3 80	4 50
5½	4	6 50	4 35	5 00
6	4	6 50	4 35	5 00
6½	4½	7 10	5 00	5 50
7	5	7 70	5 75	6 10
7½	5½	8 40	6 60	6 80
8	5½	8 40	6 60	6 80
8½	6	9 30	7 60	7 65
9	6½	10 50	8 50	8 50
9½	7	12 00	10 00	11 00
10	7	12 00	10 00	11 00

No. 3 Levers will be furnished in all cases unless another style is specified. Levers arranged for wood or iron extension.

Rigid Hangers

With Self-Oiling Boxes, Babbitted



Counter-Shaft Hanger, add 50 cents net for Shipper Arm.

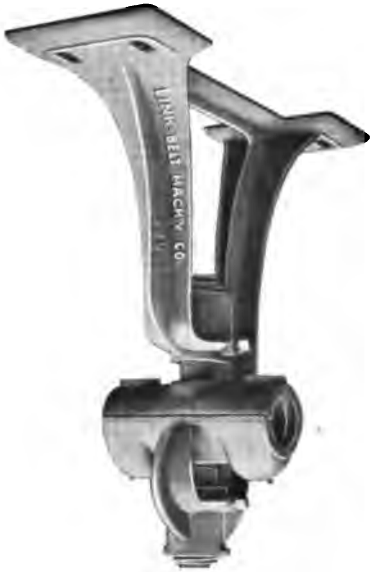
Size of Box	Drop in Inches.						
	8	10	12	15	18	21	24
$\frac{15}{16}$	$3 10	$3 20	$3 30				
$1\frac{3}{16}$	3 30	3 40	3 50				
$1\frac{7}{16}$	3 50	3 70	3 90	$4 30	$4 70		
$1\frac{11}{16}$	4 00	4 30	4 60	5 10	5 60	$6 10	
$1\frac{15}{16}$	4 80	5 20	5 60	6 20	6 80	7 40	
$2\frac{3}{16}$	5 90	6 40	6 90	7 60	8 30	9 00	$9 70
$2\frac{7}{16}$	7 30	7 90	8 50	9 30	10 10	10 90	11 70
$2\frac{11}{16}$	9 00	9 70	10 40	11 30	12 20	13 10	14 00
$2\frac{15}{16}$		11 80	12 60	13 60	14 60	15 60	16 60

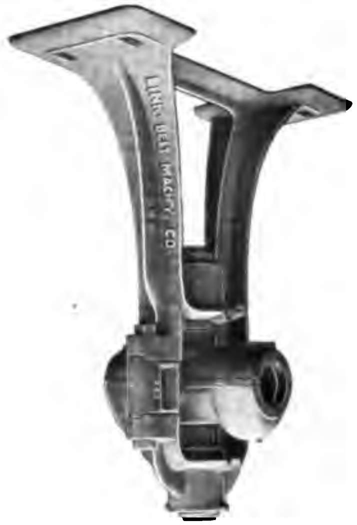
The Drop of a Hanger is the vertical distance from the foot to the center of Box. For dimensions, see Index.

Ball and Socket Hangers

Inverted Hanger or Floor Stand

Same Price as Drop Hanger


SINGLE BRACED


DOUBLE BRACED

WITH SELF-OILING BOXES, BABBITTED

For Counter-Shaft Hanger, add 50 cents net for Shipper Arm.

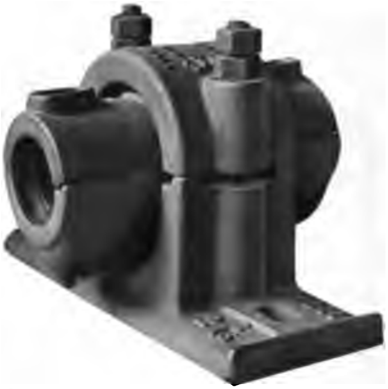
Price List, Including Drip Cups

Size of Box.	Drop in Inches.						
	10	12	15	18	21	24	30
$1\frac{3}{16}$	$4 40	$4 60					
$1\frac{7}{16}$	4 60	4 90	$5 30				
$1\frac{11}{16}$	5 10	5 50	6 00	$6 50	$7 00		
$1\frac{15}{16}$	6 00	6 50	7 10	7 70	8 30	$9 50	
$2\frac{3}{16}$	7 30	7 90	8 60	9 30	10 00	11 40	$12 80
$2\frac{7}{16}$	9 00	9 70	10 50	11 30	12 10	13 70	15 30
$2\frac{11}{16}$	11 10	11 90	12 80	13 70	14 40	16 40	18 20
$2\frac{15}{16}$	13 60	14 50	15 50	16 50	17 50	19 50	21 50
$3\frac{3}{16}$		17 50	18 60	19 70	20 80	23 00	25 20
$3\frac{7}{16}$		20 90	22 10	23 30	24 50	26 90	29 30
$3\frac{11}{16}$		24 70	26 00	27 30	28 60	31 20	33 80
$3\frac{15}{16}$			30 30	31 70	33 10	35 90	38 70
$4\frac{7}{16}$			40 10	41 70	43 30	46 50	49 70
$4\frac{15}{16}$				53 30	55 10	58 70	62 30

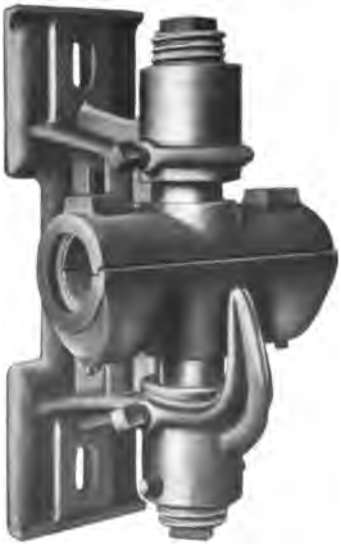
The Drop of a Hanger is the vertical distance from the foot to the center of Box. For dimensions, see Index.

Ball and Socket Journal Bearings

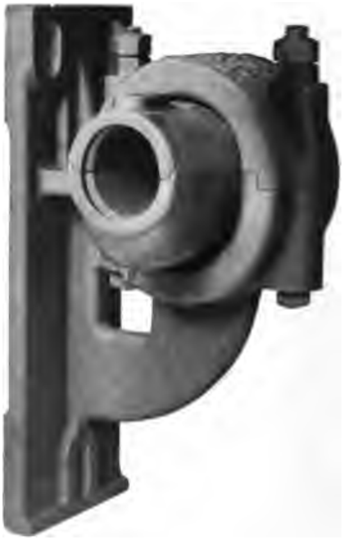
Capillary or Chain Oiling



STANDARD BALL AND SOCKET
PILLOW BLOCK



STANDARD BALL AND SOCKET
POST HANGER
With Vertical Adjustment.



SPECIAL BALL AND SOCKET
POST HANGER
Without Vertical Adjustment.

Price List

Ball and Socket Bearings

As Shown on Opposite Page

Variations in Prices Governed by Discounts

Size, Inches.	Pillow Block.	Length of Box, Inches.	Post Hanger.	Extension to Center.
15/16	......	....	......	For dimensions, see Index.
1 3/16	$4 80	5	$4 50	
1 7/16	5 10	6	4 80	
1 11/16	5 50	7	5 20	
1 15/16	6 30	8	6 00	
2 3/16	7 50	9	7 30	
2 7/16	9 10	10	8 90	
2 11/16	11 10	11	10 90	
2 15/16	13 50	12	13 30	
3 3/16	16 30	13	16 20	
3 7/16	19 50	14	19 40	
3 11/16	23 10	15	23 00	
3 15/16	27 10	16	27 00	
4 7/16	36 30	18	36 30	
4 15/16	47 10	20	47 10	
5 7/16	59 50	22	......	
5 15/16	73 50	24	......	

Adjustable Step Boxes

For Dimensions, see Index.

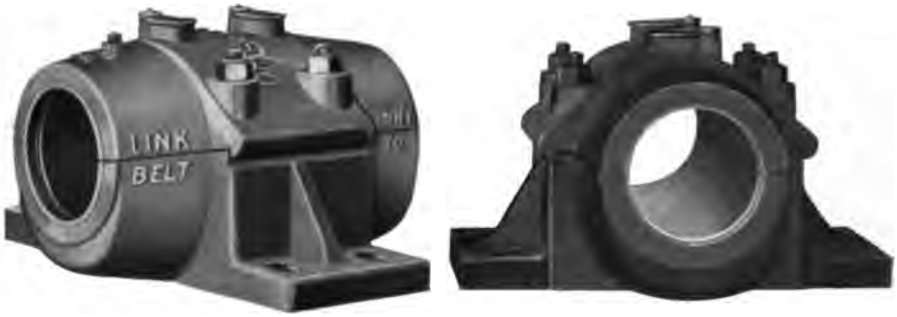
ADJUSTABLE STEP BOX

WITH OIL POT

Diameter of Shaft, Inches.	Price.
15/16	$5 50
1 3/16	6 00
1 7/16	6 75
1 11/16	7 80
1 15/16	9 20
2 3/16	11 00
2 7/16	13 00
2 11/16	16 00
2 15/16	20 00

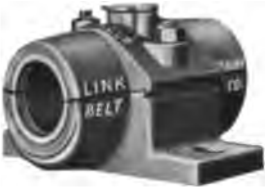
Rigid Journal Bearings

Plain, Capillary, or Chain Oiling

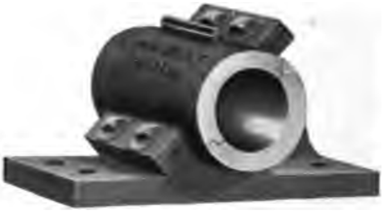


Rigid Pillow Blocks

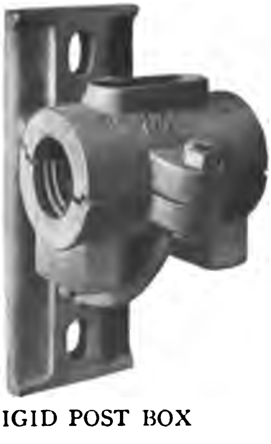
Showing Side and End View as Made in Large Sizes



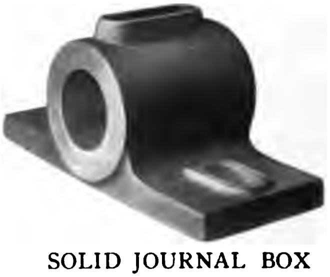
RIGID PILLOW BLOCK
As made in small sizes



45° ANGLE PILLOW BLOCK
Bored or Babbitted, not Self Oiling



RIGID POST BOX



SOLID JOURNAL BOX
Bored or Babbitted, not Self Oiling

In addition to the above we have a large assortment of Special Journal Boxes for Horizontal and Vertical Shafts.

Price List

Rigid Journal Bearings

Plain, Capillary, or Chain Oiling

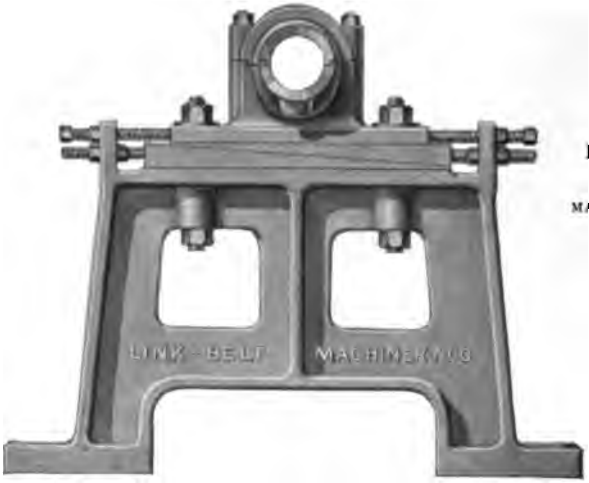
Variations in prices governed by discounts.
For dimensions, see Index.

Size. Inches.	Pillow Blocks.	Post Boxes.	Solid Journal Boxes, Bored.	Solid Journal Boxes, Babbitted.
$\frac{15}{16}$	$2 00	$2 25	$0 75	$0 85
$1\frac{3}{16}$	2 50	2 75	90	1 00
$1\frac{7}{16}$	3 00	3 25	1 25	1 35
$1\frac{11}{16}$	3 50	3 75	1 60	1 75
$1\frac{15}{16}$	4 00	4 50	2 00	2 20
$2\frac{3}{16}$	4 75	5 25	2 60	2 90
$2\frac{7}{16}$	6 00	6 75	3 25	3 60
$2\frac{11}{16}$	7 00	7 75	4 00	4 40
$2\frac{15}{16}$	8 50	9 25	5 00	5 50
$3\frac{3}{16}$	10 00	11 00	6 00	6 60
$3\frac{7}{16}$	12 00	13 25	7 25	8 00
$3\frac{15}{16}$	16 50	18 00	10 00	11 00
$4\frac{7}{16}$	22 00	24 25	......	......
$4\frac{15}{16}$	30 00	33 00	......	......
$5\frac{7}{16}$	38 50	42 25	......	......
$5\frac{15}{16}$	48 00	52 50	......	......
$6\frac{7}{16}$	60 00	.....	......	......
$6\frac{15}{16}$	75 00	....	......	......

Prices on Special Bearings for Vertical and Horizontal Shafts quoted on application.

Pedestals and Sole Plates

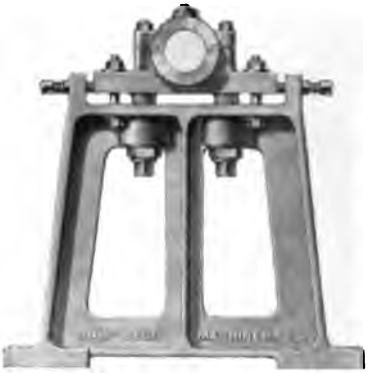
With Vertical and Horizontal Adjustment



PEDESTAL WITH WEDGE ADJUSTMENT.

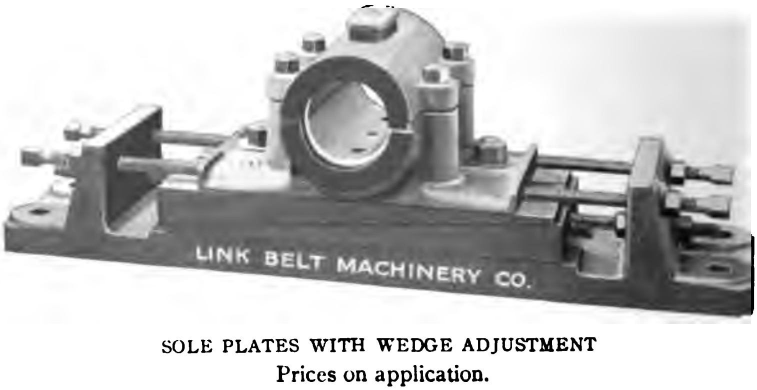
MADE IN A VARIETY OF STYLES AND PROPORTIONS.

Prices on application.



PEDESTAL WITH SCREW ADJUSTMENT

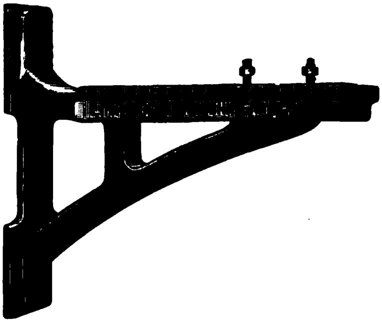
Prices on application.



SOLE PLATES WITH WEDGE ADJUSTMENT

Prices on application.

Pillow Block Sundries



WALL BRACKET

FOR PILLOW BLOCKS.

INCLUDING BOLTS, AS SHOWN. 15 INCHES EXTENSION TO CENTER OF BOX.

For dimensions, see Index.

WALL BOX FRAME

FOR PILLOW BLOCKS.

INCLUDING BOLTS FOR SECURING PILLOW BLOCKS.

BASE PLATE

OR SHOE FOR PILLOW BLOCKS,

INCLUDING BOLTS AS SHOWN.

Prices on application.

A Base Plate provides a larger footing surface for a Pillow Block, and will admit of its being adjusted if desired.

Wall Bracket,

Wall Box Frame,

Base Plate

Size, Inches.	PRICE.	
	Wall Bracket.	Wall Box Frame Without Box
$\frac{15}{16}$	......	......
$1\frac{3}{16}$	......	......
$1\frac{7}{16}$	$4 00	$6 60
$1\frac{11}{16}$	4 10	6 60
$1\frac{15}{16}$	4 40	6 60
$2\frac{3}{16}$	4 75	8 00
$2\frac{7}{16}$	5 40	8 00
$2\frac{11}{16}$	6 10	12 00
$2\frac{15}{16}$	7 00	12 00
$3\frac{3}{16}$	7 75	16 00
$3\frac{7}{16}$	8 60	16 00
$3\frac{15}{16}$	10 50	20 00
$4\frac{7}{16}$	12 50	34 00
$4\frac{15}{16}$	14 25	34 00
$5\frac{7}{16}$	16 25	50 00
$5\frac{15}{16}$	......	50 00

Turned Shafting
Flanged Face Couplings
Safety Collars

The shafting made straight, true and turned exactly to gauge. All shafts above $4\frac{7}{16}$ are of hammered iron.

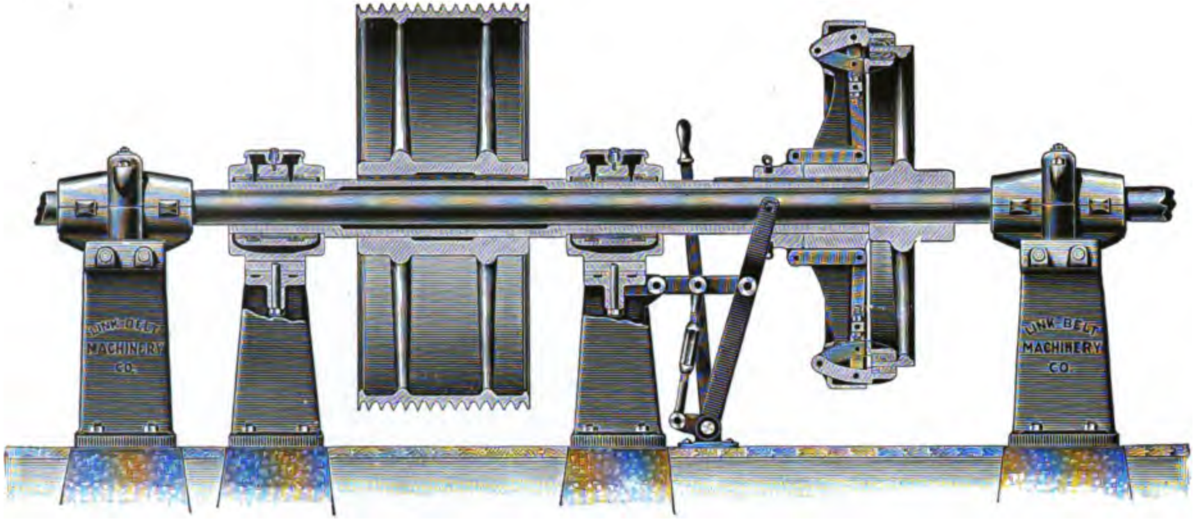
FLANGED FACE COUPLINGS
WITH TURNED BOLTS.
HOLES DRILLED BY TEMPLETS, THEREFORE INTERCHANGEABLE

For dimensions, see Index.

PATENT SAFETY COLLAR
WITH SET SCREWS.
MADE PLAIN OR SPLIT

For dimensions, see Index.

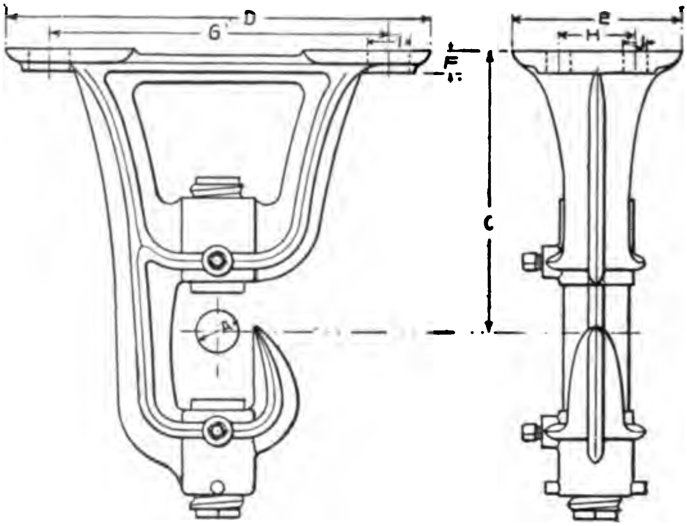
Finished Shafting.		**Flanged Face Coupling.**	**Iron Set Collars.**	**Split Set Collars.**
Diam. of Shaft, Inches.	Price per Foot.	Price per Pair.	Price Each.	Price Each.
$\frac{15}{16}$	$0 70	$7 50	$0 70	$1 05
$1\frac{3}{16}$	75	7 75	80	1 20
$1\frac{7}{16}$	80	8 00	1 00	1 50
$1\frac{11}{16}$	87	8 50	1 20	1 80
$1\frac{15}{16}$	1 05	9 00	1 40	2 10
$2\frac{3}{16}$	1 25	10 50	1 60	2 40
$2\frac{7}{16}$	1 50	12 50	1 80	2 70
$2\frac{11}{16}$	1 80	15 25	2 10	3 15
$2\frac{15}{16}$	2 15	18 25	2 40	3 60
$3\frac{3}{16}$	2 60	21 75	2 70	4 05
$3\frac{7}{16}$	2 95	25 25	3 00	4 50
$3\frac{15}{16}$	4 00	33 25	3 60	5 40
$4\frac{7}{16}$	5 30	43 25	4 70	7 05
$4\frac{15}{16}$	6 90	54 75	5 90	8 85
$5\frac{7}{16}$	8 75	67 00	7 20	10 80
$5\frac{15}{16}$	10 85	81 00	8 60	12 90
$6\frac{7}{16}$	13 20	95 50	10 10	15 15
$6\frac{15}{16}$	15 90	110 00	11 70	17 55



LINK-BELT QUILL OR HOLLOW SHAFT

RELIEVES MAIN SHAFT FROM STRAIN AND WEIGHT OF HEAVY DRIVING PARTS AND PREVENTS THE WEAR ON SHAFT AND IN HUB OF PULLEY, WHICH WOULD OTHERWISE RESULT WHEN ONE IS REVOLVING AND THE OTHER IDLE. PRICES QUOTED ON APPLICATION.

IF THE SHAFT DRIVES THE QUILL, THE CLUTCH MECHANISM SHOULD BE ATTACHED TO QUILL AND CLUTCH RING TO SHAFT, AS SHOWN ABOVE. IF, HOWEVER, THE QUILL DRIVES THE SHAFT, THIS ARRANGEMENT SHOULD BE REVERSED, THE CLUTCH MECHANISM BEING ATTACHED TO SHAFT AND RING TO QUILL.



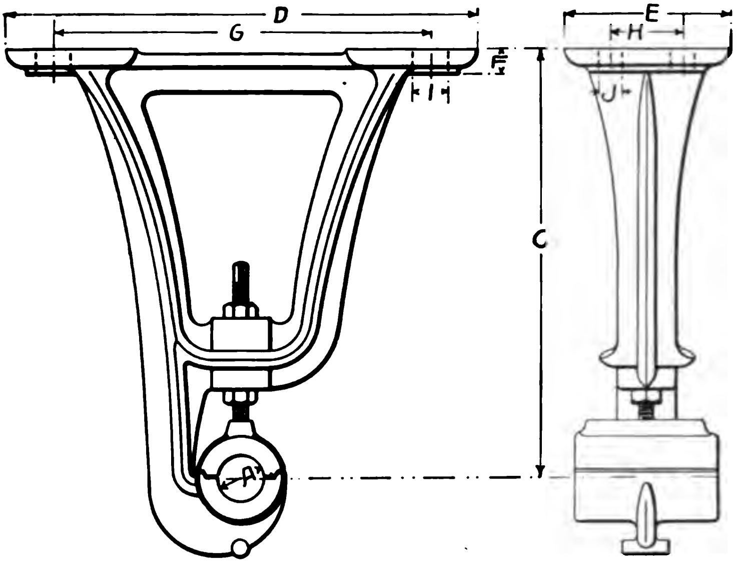
DIMENSIONS OF BALL AND SOCKET HANGERS

A	C	D	E	F	G	H	I	J	A	C	D	E	F	G	H	I	J
1 3/16	10	14½	5⅜	13/16	11		1⅛	9/16	1 15/16	12	18	6¾	1	14		1⅜	13/16
1 3/16	12	15¾	5½	13/16	12½		1⅛	5/8	1 15/16	15	19½	7	1	15¾		1⅜	13/16
1 7/16	10	15	5⅞	7/8	11¾		1⅜	13/16	1 15/16	18	21	7	1	17¼		1⅜	13/16
1 7/16	12	16	6	13/16	12½		1⅜	13/16	1 15/16	11	22½	7¼	1	19		1⅜	13/16
1 7/16	15	17½	6¼	13/16	14		1⅜	13/16	1 15/16	24	24	7½	1 1/16	20⅝		1⅜	13/16
1 7/16	18	19	6½	13/16	15½		1⅜	13/16	2 3/16	10	18¼	7¼	15/16	13½		1¾	13/16
1 7/16	21	20½	6¾	13/16	17		1½	13/16	2 3/16	12	19	7¾	1	14⅛		1⅝	13/16
1 11/16	10	16	6¼	1	12		1⅜	13/16	2 3/16	15	20½	7¾	13/16	15¾		1¾	7/8
1 11/16	12	17	6½	15/16	13¼		1½	3/4	2 3/16	18	22	7⅞	13/16	17⅛		1¾	7/8
1 11/16	15	18½	6¾	13/16	14¾		1⅝	13/16	2 3/16	21	23½	8	7/8	19		1¾	7/8
1 11/16	18	20	7	13/16	16		1⅜	13/16	2 3/16	24	25	8¼	1	20¾		1¾	7/8
1 11/16	21	21	7	13/16	17½		1⅜	13/16	2 3/16	30	27½	8⅝	1	23¼		2	15/16
1 11/16	24	22¾	7¼	13/16	19		1½	13/16	2 7/16	10	19	8	15/16	14¼		1¾	7/8
1 15/16	10	17	6¾	15/16	12¾		1⅝	13/16	2 7/16	12	20	8½	15/16	15¼		1¾	7/8

DIMENSIONS OF BALL AND SOCKET HANGERS

CONTINUED

A	C	D	E	F	G	H	I	J	A	C	D	E	F	G	H	I	J
2 7/16	15	21½	8½	15/16	17		1¾	7/8	3 3/16	24	30	11⅛	1⅛	24½	5½	2¼	1
2 7/16	18	23¼	8½	1	18½		1¾	7/8	3 7/16	12	25½	11	1⅛	18½	4⅝	2¼	1 1/16
2 7/16	21	24½	9	1	20		1¾	7/8	3 7/16	15	27½	11	1⅛	21	5½	2¼	1
2 7/16	24	26	9¼	1	21⅝		1¾	7/8	3 7/16	18	28⅝	11⅝	1⅛	22¼	5⅝	2¼	15/16
2 7/16	30	28½	9½	7/8	24		1¾	7/8	3 7/16	21	30½	12	1⅛	23½	5¾	2¼	15/16
2 11/16	10	21	9	7/8	15¾	4	1¾	15/16	3 7/16	24	32¼	12¼	1 3/16	25¼	5¾	2¼	1 1/16
2 11/16	12	20¾	8¾	7/8	16	4	1¾	15/16	3 7/16	28	33	12½	1 3/16	26½	6	2¼	1 1/16
2 11/16	15	22½	9	7/8	17½	3⅞	1¾	15/16	3 7/16	30	33	12½	1 3/16	26½	6	2¼	1 1/16
2 11/16	18	23¾	9¼	7/8	18½	4⅛	1¾	15/16	3 15/16	15	27½	10¾	1¼	21¾	6¼	2¼	1
2 11/16	21	25½	9½	7/8	21	4	1¾	15/16	3 15/16	18	29	11½	1¼	23½	7	2¼	1
2 11/16	24	27	9¾	7/8	22¼	3⅞	1⅞	15/16	3 15/16	21	29¾	12¼	1¼	25	8	2¼	1 1/16
2 11/16	30	31½	9¾	1	26½	4	1¾	15/16	3 15/16	24	32	13	1¼	26½	8	2¼	1 1/16
2 15/16	10	21⅝	10	1	16½	4¼	1¾	15/16	3 15/16	30	33½	13	1¼	27½	8	2¼	1 1/16
2 15/16	12	22	9¾	1	16¾	4	1¾	15/16	4 7/16	15	28½	9½	1⅝	22¼	5	2¼	1⅛
2 15/16	15	23½	9¾	1	18¼	4¼	2	15/16	4 7/16	18	30	11½	1⅝	22½	6	2¼	1⅛
2 15/16	18	24¾	10	1	20½	4½	1¾	15/16	4 7/16	21	31½	12¼	1⅝	24	6½	2¼	1⅛
2 15/16	21	26½	10¼	1	21½	4	1¾	15/16	4 7/16	24	33	13	1⅝	25½	7½	2¼	1⅛
2 15/16	24	28	10½	1	23	4¼	1¾	15/16	4 7/16	30	34	13¾	1⅝	26⅛	8	2¼	1⅛
2 15/16	30	29	10¾	1	23¼	5¾	2¼	15/16	4 15/16	18	30¼	11¾	1¾	23¼	5¾	2½	1¼
3 3/16	12	25⅝		1⅛	19¾	5	2⅛	15/16	4 15/16	21	31¾	12¼	1¾	25	5¾	2½	1¼
3 3/16	15	25½	10⅝	1⅛	19½	4⅞	2¼	15/16	4 15/16	24	33	13½	1¾	25½	6	2½	1¼
3 3/16	18	27¼	10¾	1⅛	21¼	5	2¼	15/16	4 15/16	30	35	14	1¾	28	6	2½	1¼
3 3/16	21	28½	11	1⅛	23	5	2¼	1⅛	5 15/16	24	34¼	15½		28	9¾	2¾	1⅜

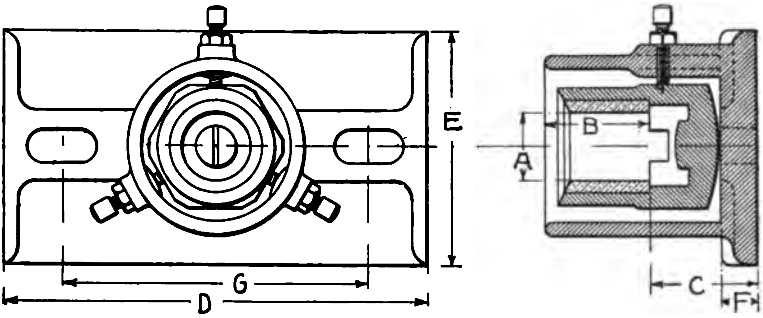


DIMENSIONS OF RIGID HANGERS

A	C	D	E	F	G	H	I	J	A	C	D	E	F	G	H	I	J
15/16	8	10¼	4½	5/8	7⅛		1⅛	9/16	1 11/16	24	24¼	7½	7/8	20½		1½	13/16
15/16	12	14	5½	11/16	10¾		1⅛	9/16	1 15/16	8	15½	6⅝	7/8	12		1⅜	13/16
1 3/16	8	13⅝	5	13/16	10		1⅛	11/16	1 15/16	10	17¼	6¾	7/8	13		1⅜	13/16
1 3/16	10	14⅝	5⅜	13/16	11⅛		1⅛	11/16	1 15/16	12	18	6⅝	7/8	14		1⅜	13/16
1 3/16	12	15⅝	5½	13/16	12¼		1⅛	11/16	1 15/16	15	19½	7⅛	7/8	16⅛		1⅜	13/16
1 7/16	8	14	6	7/8	10¼		1⅜	13/16	1 15/16	18	21¼	7¼	7/8	17⅜		1⅜	13/16
1 7/16	10	15⅛	6	7/8	11¾		1⅜	13/16	1 15/16	21	22⅞	7⅜	7/8	19¼		1½	13/16
1 7/16	12	16	6	7/8	12⅝		1⅜	13/16	1 15/16	24	24¼	7½	7/8	20½		1½	13/16
1 7/16	15	17¾	6¼	7/8	13¾		1⅜	13/16	2 3/16	8	17¼	7¼	1	12½		1¾	13/16
1 7/16	18	19	6½	7/8	15½		1⅜	13/16	2 3/16	10	18¼	7¼	1	13½		1¾	13/16
1 11/16	8	15½	6⅝	7/8	12		1⅜	13/16	2 3/16	12	19¼	7⅝	1	14½		1¾	13/16
1 11/16	10	17¼	6¾	7/8	13		1⅜	13/16	2 3/16	15	20⅝	7¾	1	15¾		1¾	13/16
1 11/16	12	18	6⅝	7/8	14		1⅜	13/16	2 3/16	18	22	7¾	1	17½		1¾	13/16
1 11/16	15	19½	7⅛	7/8	16⅛		1⅜	13/16	2 3/16	21	23¾	8	1	19		1¾	13/16
1 11/16	18	21¼	7¼	7/8	17⅜		1⅜	13/16	2 3/16	24	25⅛	8¼	1	20⅞		1¾	13/16
1 11/16	21	22⅞	7⅜	7/8	19¼		1½	13/16	2 7/16	8	18½	7⅝	7/8	13⅞		1¾	7/8

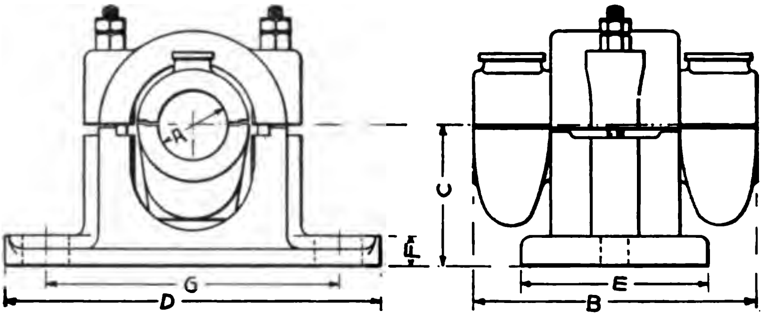
DIMENSIONS OF RIGID HANGERS
CONTINUED

A	C	D	E	F	G	H	I	J	A	C	D	E	F	G	H	I	J
2 7/16	10	19	8	15/16	13 3/4		1 3/4	7/8	2 11/16	21	25 7/8	9 3/4	15/16	21	4	2	15/16
2 7/16	12	20	8 3/8	7/8	15 1/2		1 3/4	7/8	2 11/16	24	27	9 3/4	15/16	22 1/8	4	2	15/16
2 7/16	15	21 1/4	8 1/2	7/8	16 3/4		1 3/4	7/8	2 15/16	10	21	9 1/8	1	16 1/4	4	2	15/16
2 7/16	18	23 1/8	8 5/8	7/8	18 1/4		1 3/4	7/8	2 15/16	12	22	9 1/8	1	17 1/4	4	2	15/16
2 7/16	21	24 3/4	8 7/8	7/8	19 1/4		1 3/4	7/8	2 15/16	15	23 3/4	9 7/8	15/16	18 1/2	4 1/2	2	15/16
2 7/16	24	26 1/2	8 1/2	7/8	21 3/8		1 3/4	7/8	2 15/16	18	25	9 7/8	15/16	20	4 1/2	2	15/16
2 11/16	15	22 5/8	8 3/4	7/8	17 7/8	3 1/8	2	15/16	2 15/16	21	28	10 3/8	1	21 7/8	4 3/4	2	15/16
2 11/16	18	24	9 3/8	7/8	19 1/4	3 3/8	2	15/16	2 15/16	24	28 3/4	10 7/8	1	23 3/8	4 7/8	2	15/16



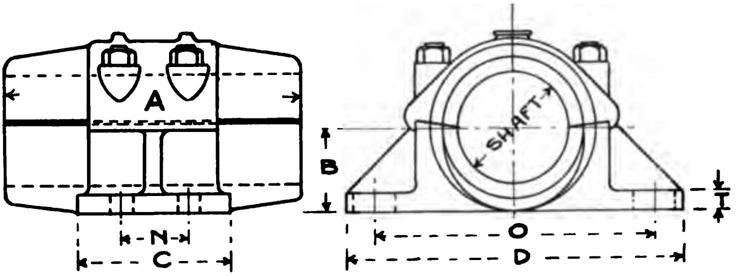
DIMENSIONS OF ADJUSTABLE STEP BOXES

A	B	C	D	E	F	G	SEC. BOLTS	A	B	C	D	E	F	G	SEC. BOLTS
15/16	1 3/4	1 3/8	8	4 1/8	9/16	5 5/16	5/8	2 11/16	3 1/2	2 5/8	13	8 1/8	15/16	9 5/8	7/8
1 3/16	2	1 9/16	8 1/2	4 1/2	5/8	6	5/8	2 15/16	3 3/4	2 1/8	12	7 1/2	3/4	9 1/2	7/8
1 7/16	2 1/4	1 11/16	8 3/4	5	11/16	6 1/4	5/8	3 3/16	4	2 15/16	15	9	1 1/16	11 1/2	7/8
1 11/16	2 1/2	1 15/16	9 1/2	5 3/4	3/4	6 7/8	5/8	3 7/16	4 1/4	3 1/4	16	9 1/2	1 1/8	12	1
1 15/16	2 3/4	2 3/16	10 1/2	6 1/2	3/4	7 3/4	5/8	3 11/16	4 1/2	3 5/16	17	10	1 1/8	13	1
2 3/16	3	2	11	7	7/8	7 7/8	3/4	3 15/16	4 3/4	3 1/2	18 1/4	11	1 3/16	14	1
2 7/16	3 1/4	2 1/16	11 1/4	7	13/16	8 3/4	3/4								



DIMENSIONS OF SELF OILING BALL & SOCKET PILLOW BLOCKS

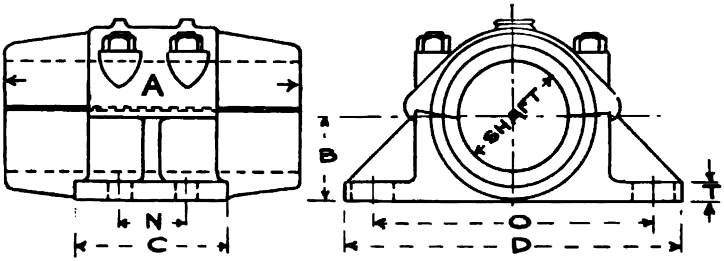
A	B	C	D	E	F	G	SECURING BOLTS
1 3/16	4 3/4	2 3/4	8 1/2	2 1/2	5/8	6 1/2	1/2
1 7/16	5 3/4	3	9 3/4	3	3/4	7 3/8	1/2
1 11/16	6 3/4	3 1/4	10 1/4	3 1/2	3/4	7 3/4	5/8
1 15/16	8	3 5/8	10 5/8	4 1/2	7/8	8	5/8
2 3/16	9	3 3/4	11 3/4	4 7/8	7/8	9 1/8	5/8
2 7/16	10	4	12 1/2	5 1/2	7/8	9 3/4	3/4
2 11/16	11	4 1/4	14	6	1	10 3/4	3/4
2 15/16	12	4 1/2	14	6 3/4	1	11	3/4
3 3/16	13	5 1/8	15 3/8	7 1/4	1	12	7/8
3 7/16	14	5 1/2	16 5/8	8	1 1/8	12 7/8	7/8
3 11/16	15	5 3/4	17 3/4	8	1 1/8	13 3/4	1
3 15/16	16	5 7/8	19	8	1 1/4	14 1/4	1
4 7/16	18	6 1/2	21 5/8	9	1 3/8	16 1/2	1 1/4
4 15/16	20	7	23	10	1 1/2	18	1 1/4
5 7/16	22	7 1/4	25	11	1 1/2	19 3/4	1 1/4
5 15/16	24	7 3/4	26 7/8	12	1 1/2	21 1/4	1 1/2
6 15/16	28	8	32	13 1/4	1 5/8	25 1/2	1 5/8
7 15/16	32	10	35 1/4	14	2 1/8	28 1/2	1 3/4



DIMENSIONS OF
RIGID SELF OILING PILLOW BLOCKS

BASE AND ENDS OF BEARING FINISHED

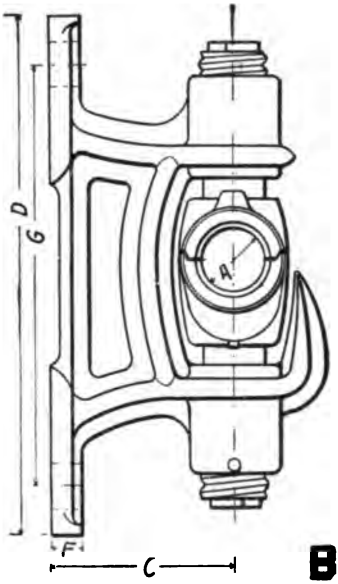
SHAFT	A	B	C	D	T	N	O	BASE BOLTS	SHAFT
1 15/16	6	2 1/4	3	8 1/2	5/8		6 3/4	2-5/8	1 15/16
2 3/16	6 3/4	2 1/4	3 1/2	8 3/4	5/8		7	2-5/8	2 3/16
2 7/16	7 1/2	2 1/2	4	9 3/4	3/4		7 3/4	2-5/8	2 7/16
2 11/16	8 1/4	2 3/4	4 1/4	11	3/4		8 1/2	2-3/4	2 11/16
2 15/16	9	3	4 1/2	11 1/2	7/8		9	2-3/4	2 15/16
3 3/16	9 3/4	3 1/4	5	13	7/8	2 3/4	10 1/4	4-3/4	3 3/16
3 7/16	10 1/2	3 1/2	5 1/4	13 1/4	7/8	3	10 1/2	4-3/4	3 7/16
3 15/16	12	4	6	14	1	3 1/2	11 1/2	4-3/4	3 15/16
4 7/16	13 1/2	4 1/2	7	15 1/2	1 1/8	4	12 1/2	4-7/8	4 7/16
4 15/16	15	5	7 3/4	17	1 1/4	4 1/2	13 1/2	4-1	4 15/16
5 7/16	16 1/2	5 1/2	8 1/2	19 1/2	1 3/8	5	15 1/2	4-1 1/8	5 7/16
5 15/16	18	6	9	22	1 1/2	5 1/2	17	4-1 1/8	5 15/16
6 7/16	19 1/2	6 1/2	9 5/8	23 1/2	1 5/8	6	18 1/2	4-1 1/4	6 7/16
7	21	7	10	24 1/2	2	6	19 1/2	4-1 1/4	7
7 1/2	22 1/2	8	11	27	2 1/4	7	21 1/2	4-1 1/4	7 1/2
8	24	8	11	27	2 1/4	7	21 1/2	4-1 1/4	8
8 1/2	25 1/2	9	12	30 1/2	2 1/2	8	24 1/4	4-1 1/2	8 1/2
9	27	9	12	30 1/2	2 1/2	8	24 1/4	4-1 1/2	9
9 1/2	28 1/2	10 1/2	12	32	2 1/2	8	25 1/2	4-1 3/4	9 1/2
10	30	10 1/2	12	32	2 1/2	8	25 1/2	4-1 3/4	10
10 1/2	31 1/2	10 1/2	12	32	2 1/2	8	25 1/2	4-1 3/4	10 1/2

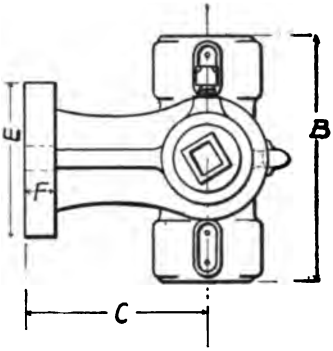


DIMENSIONS OF
PLAIN RIGID PILLOW BLOCKS

BASE AND ENDS OF BEARING ROUGH UNLESS ORDERED FINISHED
SPRING OIL WELL COVERS REGULAR · GREASE CUPS WHEN ORDERED ·

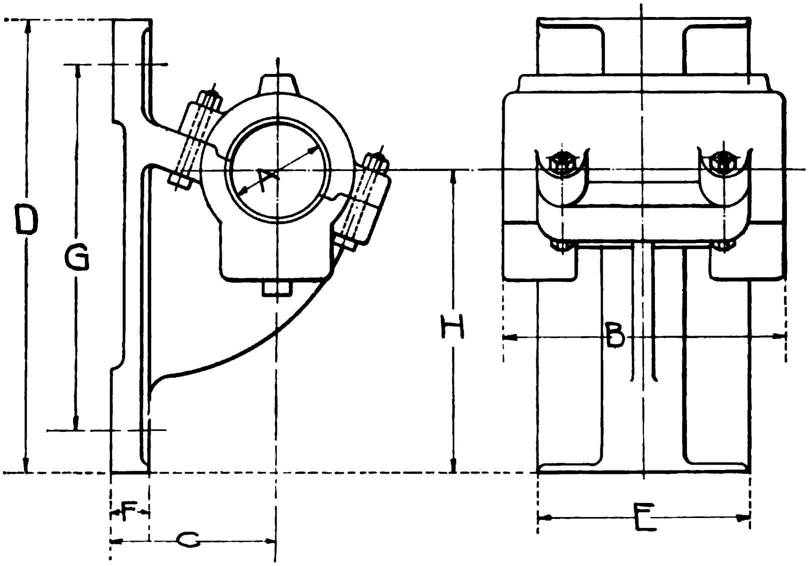
	ROUGH				FINISHED				ROUGH				
SHAFT	A	B	C	D	A	B	T	GR. CUP	T	N	O	BASE BOLTS	SHAFT
1 15/16	6 1/4	2 3/8	3	8 1/2	6	2 1/4	5/8	# 0	3/4		6 3/4	5/8	1 15/16
2 3/16	6 7/8	2 3/8	3 1/2	8 3/4	6 3/4	2 1/4	5/8	"	3/4		7	5/8	2 3/16
2 7/16	7 3/4	2 5/8	4	9 3/4	7 1/2	2 1/2	3/4	"	7/8		7 3/4	5/8	2 7/16
2 11/16	8 1/2	2 7/8	4 1/4	11	8 1/4	2 3/4	3/4	"	7/8		8 1/2	3/4	2 11/16
2 15/16	9 1/4	3 1/8	4 1/2	11 1/2	9	3	7/8	"	1		9	3/4	2 15/16
3 3/16	10	3 3/8	5	13	9 3/4	3 1/4	7/8	# 1	1	2 3/4	10 1/4	3/4	3 3/16
3 7/16	10 3/4	3 5/8	5 1/4	13 1/4	10 1/2	3 1/2	7/8	"	1	3	10 1/2	3/4	3 7/16
3 15/16	12 1/4	4 1/8	6	14	12	4	1	"	1 1/8	3 1/2	11 1/2	3/4	3 15/16
4 7/16	13 3/4	4 5/8	7	15 1/2	13 1/2	4 1/2	1 1/8	# 2	1 1/4	4	12 1/2	7/8	4 7/16
4 15/16	15 1/4	5 1/8	7 3/4	17	15	5	1 1/4	"	1 3/8	4 1/2	13 1/2	1	4 15/16
5 7/16	16 3/4	5 5/8	8 1/2	19 1/2	16 1/2	5 1/2	1 3/8	# 2-2	1 1/2	5	15 1/2	1 1/8	5 7/16
5 15/16	18 1/4	6 1/8	9	22	18	6	1 1/2	" "	1 5/8	5 1/2	17	1 1/8	5 15/16
6 7/16	19 3/4	6 5/8	9 5/8	23 1/2	19 1/2	6 1/2	1 5/8	" "	1 3/4	6	18 1/2	1 1/4	6 7/16
7	21 1/4	7 1/8	10	24 1/2	21	7	2	" "	2 1/8	6	19 1/2	1 1/4	7
7 1/2	22 3/4	8 3/16	11	27	22 1/2	8	2 1/4		2 1/2	7	21 1/2	1 1/4	7 1/2
8	24 1/4	8 3/16	11	27	24	8	2 1/4		2 1/2	7	21 1/2	1 1/4	8
8 1/2	25 3/4	9 1/4	12	30 1/2	25 1/2	9	2 1/2		2 3/4	8	24 1/4	1 1/2	8 1/2
9	27	9 1/4	12	30 1/2	27	9	2 1/2		2 3/4	8	24 1/4	1 1/2	9
9 1/2	28 1/2	10 7/8	12	32	28 1/2	10 1/2	2 1/2		2 7/8	8	25 1/2	1 3/4	9 1/2
10	30	10 7/8	12	32	30	10 1/2	2 1/2		2 7/8	8	25 1/2	1 3/4	10
10 1/2	31 1/2	10 7/8	12	32	31 1/2	10 1/2	2 1/2		2 7/8	8	25 1/2	1 3/4	10 1/2





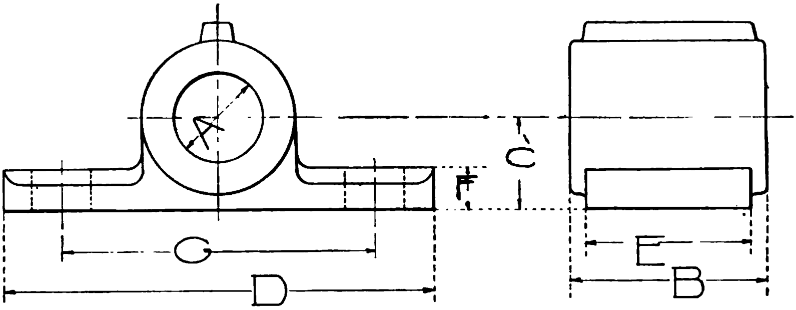
DIMENSIONS OF B.& S.POST HANGER

A	B	C	D	E	F	G	SECURING BOLTS
1 3/16	4 1/4	6	12 1/4	3	5/8	9 7/8	5/8
1 7/16	5 1/4	6	13 1/2	3 5/8	/16	11 3/8	5/8
1 11/16	6 1/4	6	15	4 1/4	3/4	12 3/4	5/8
1 15/16	8	6	15	5	13/16	13	3/4
2 3/16	9	6	17	5	7/8	13 1/2	3/4
2 7/16	10	6	18 3/4	5	15/16	15 3/4	3/4
2 11/16	11	6	21	5 1/2	15/16	17 1/2	3/4
2 15/16	12	6	22	6	1	19	3/4
3 3/16	13	8	24 5/8	6 1/2	1 1/16	20 1/2	7/8
3 7/16	14	8	26 1/4	7	1 1/8	21 3/4	7/8
3 11/16	15	8	27 3/4	7 1/2	1 1/8	23	7/8
3 15/16	16	8	29 1/4	8	1 3/16	24 1/4	1
4 3/16	17	8	30 3/4	8 1/2	1 1/4	25 1/4	1
4 7/16	18	8	32 1/4	9	1 5/16	26 5/8	1
4 11/16	19	8	33 3/4	9 1/2	1 3/8	29	1
4 15/16	20	8	35 1/4	10	1 7/16	29 3/4	1
5 3/16	21	10	37	10 1/2	1 1/2	31	1 1/4
5 7/16	22	10	38 3/4	11	1 9/16	32 1/2	1 1/4
5 11/16	23	10	40 1/4	11 1/2	1 5/8	34	1 1/4
5 15/16	24	10	42	11 3/4	1 11/16	36	1 1/4



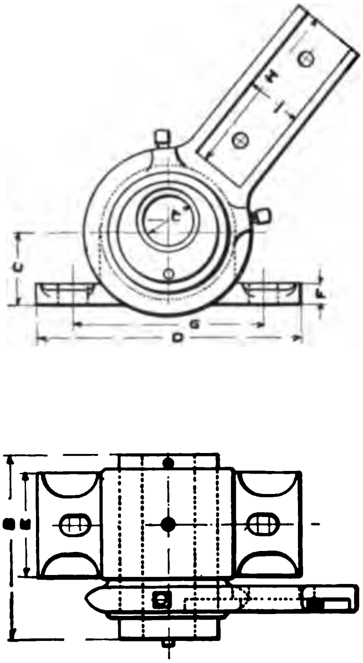
DIMENSIONS OF RIGID SELF OILING POST BOXES

A	B	C	D	E	F	G	H	SEC. BOLTS	A	B	C	D	E	F	G	H	SEC. BOLTS
13/16	3 7/16	2 3/4	8 5/8	2 11/16	9/16	6 3/4	5 1/4	3/8	2 15/16	8 13/16	5 5/8	16 5/8	6 1/8	1	13 1/4	11 1/8	7/8
15/16	3 7/16	2 3/4	8 5/8	2 1/16	9/16	6 3/4	5 1/4	3/8	3 3/16	9 3/8	5 3/4	17 3/8	6 1/2	1 1/16	13 1/8	11 5/8	7/8
1 3/16	4 1/16	3	9 1/8	2 1/8	1/2	6 15/16	5 1/2	3/8	3 7/16	9 15/16	5 15/16	18 1/8	7	1 1/8	13 7/8	12	7/8
1 5/16	4 11/16	3 9/16	10 1/8	3 1/4	11/16	7 7/8	5 7/8	1/2	3 11/16	11 1/8	6 1/2	18 15/16	7 5/8	1 1/4	14 1/2	12 5/8	1
1 7/16	4 11/16	3 9/16	10 1/8	3 1/4	11/16	7 7/8	5 7/8	1/2	3 15/16	11 1/2	7	20	8 1/8	1 3/16	15 7/8	13 3/8	1
1 11/16	5 7/16	3 3/4	10 7/8	3 9/16	11/16	8 1/4	6 3/4	1/2	4 3/16	12 5/16	7 1/8	20 3/8	8 1/2	1 5/16	15 5/8	13 1/2	1
1 15/16	6 1/8	4	11 7/8	4 5/8	3/4	9 1/8	7 1/2	1/2	4 7/16	13	7 5/8	21 3/8	9 1/8	1 3/8	16 1/2	14 1/8	1
2 3/16	6 11/16	4 5/8	12 7/8	4 7/8	15/16	9 7/8	8 3/16	3/4	1 15/16	11 3/8	8 1/4	23	10 1/8	1 1/2	18 1/2	16 5/8	1 1/8
2 7/16	7 1/2	5 1/8	14 7/8	5 1/2	3/4	11 3/4	9 1/2	3/4	5 15/16	17 3/16	9 1/2	26 1/8	11 13/16	1 15/16	21 1/2	17 3/8	1 1/4
2 11/16	8 1/16	5 1/4	15 1/8	6	7/8	12	9 1/2	3/4	6 7/16	17 1/8	10 1/8	28 1/4	12 1/8	1 5/8	23 1/8	18 3/8	1 1/4

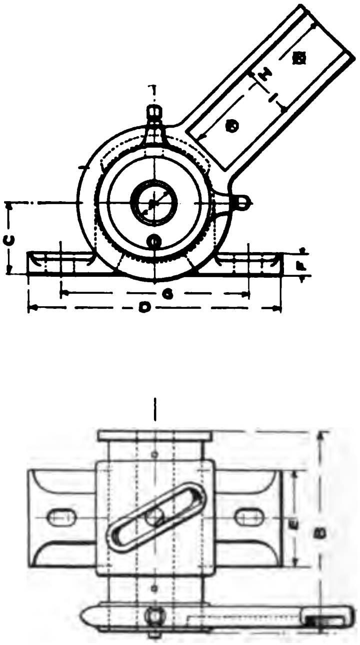


SOLID BOXES

A	B	C	D	E	F	G	SECURING BOLTS
11/16	1 5/8	11/16	4	1 1/2	3/8	2 5/8	5/16
13/16	1 7/8	15/16	4 1/2	1 3/4	5/8	3 1/8	5/16
15/16	1 7/8	15/16	4 1/2	1 3/4	5/8	3 1/8	5/16
1 3/16	2 3/8	1 3/16	5 1/2	2 1/8	3/4	3 7/8	3/8
1 7/16	2 7/8	1 3/8	6 3/4	2 1/2	3/4	4 1/2	1/2
1 11/16	3 3/8	1 11/16	7 3/4	3	7/8	5 1/4	1/2
1 15/16	3 7/8	1 15/15	9	3 1/2	1	6 1/4	5/8
2 3/16	4 3/8	2 1/16	9 1/2	4	1	6 3/4	5/8
2 7/16	4 3/4	2 7/16	10	4 3/8	1	7	3/4
2 11/6	5 3/8	2 9/16	11	5	1 1/8	8 1/8	3/4
2 15/16	5 7/8	2 15/16	12 1/8	5 1/2	1 1/4	8 5/8	3/4
3 3/16	6 3/8	3 3/16	13	6	1 1/4	9	3/4
3 7/16	7 7/8	3 7/16	15	7 1/2	1 1/4	11	7/8
3 11/16	7 7/8	3 15/16	16	7 1/2	1 1/4	11 3/4	7/8
3 15/16	7 7/8	3 15/16	16	7 1/2	1 1/4	11 3/4	7/8

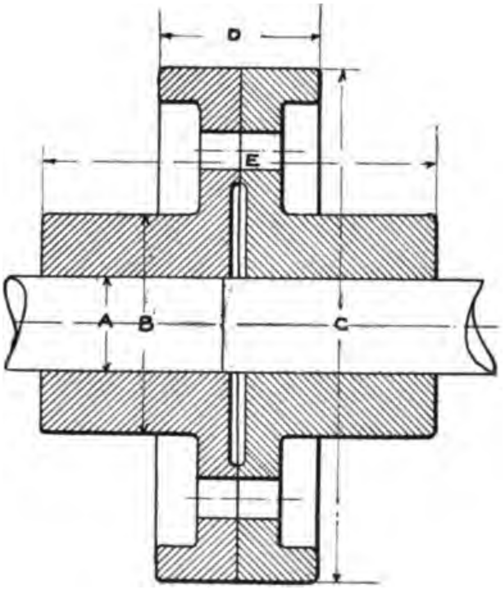


DIMENSIONS OF
RIGID ECCENTRIC BOX



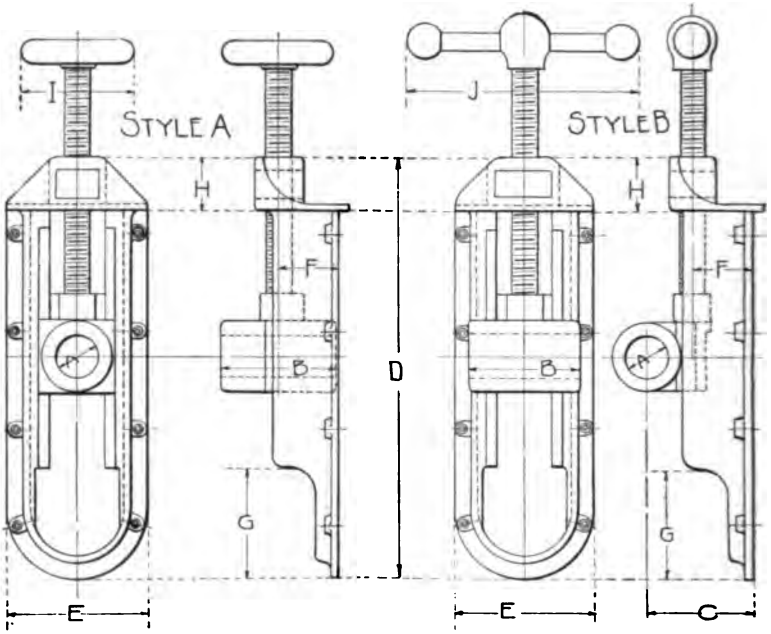
DIMENSIONS OF
RIGID END THRUST BOX

A	B	C	D	E	F	G	H	I	A	B	C	D	E	F	G	H	I
1 3/16	5 11/16	2 3/8	8 3/4	3	5/8	6 1/4	6 1/2	1 3/4	1 3/16	7 3/8	2 3/8	8 3/4	3	5/8	6 1/4	6 1/2	1 3/4
1 7/16	6 7/16	2 5/16	9 1/2	3	11/16	6 7/8	6	1 1/2	1 7/16	7 9/16	2 5/16	9 1/2	3	11/16	6 7/8	6	1 1/2
1 11/16	5 11/16	2 5/8	9 3/4	3 1/2	3/4	7 1/8	7 1/2	2	1 11/16	7 1/8	2 5/8	9 3/4	3 1/2	3/4	7 1/8	7 1/2	2
1 15/16	6 1/4	2 13/16	10 1/2	4	3/4	8	8	2	1 15/16	8 9/16	2 13/16	10 1/2	4	3/4	8	8	2
2 3/16	7 1/16	3	11 1/4	4 1/2	7/8	8 1/2	9	2 1/2	2 3/16	7 3/4	3	11 1/4	4 1/2	7/8	8 1/2	9	2 1/2
2 7/16	7 3/8	3 1/2	12	5	15/16	9	10	2 1/2	2 7/16	8 7/8	3 1/2	12	5	15/16	9	10	2 1/2
2 11/16	8 3/16	3 3/4	13 1/2	5 1/2	1	10	11 1/4	2 1/2	2 11/16	10 1/8	3 3/4	13 1/2	5 1/2	1	10	11 1/4	2 1/2
2 15/16	8 7/8	3 3/4	13 1/2	5 5/8	1	10 1/8	12	3	2 15/16	10 1/8	3 3/4	13 1/2	5 1/2	1	10 1/8	12	3
3 3/16	9 5/8	4 3/4	14 1/4	6 3/8	1 1/16	11	12 1/2	3	3 3/16	9 5/8	4 3/4	14 1/4	6 3/8	1 1/16	11	12 1/2	3
3 7/16	10 3/8	4 1/2	15 1/4	7 1/2	1 1/8	11 3/4	13	3	3 7/16	12 3/4	4 1/2	15 1/4	7 1/2	1 1/8	11 3/4	13	3
3 11/16	10 3/8	4 1/2	15 1/4	7 1/2	1 1/8	11 3/4	13	3	3 11/16	12 3/4	4 1/2	15 1/4	7 1/2	1 1/8	11 3/4	13	3
3 15/16	11 1/8	4 5/8	15 3/4	8	1 3/16	12 1/4	14	4	3 15/16	13 7/16	4 5/8	15 3/4	8	1 3/16	12 1/4	14	4



DIMENSIONS OF FLANGED FACE COUPLINGS

A	B	C	D	E	A	B	C	D	E
15/16	2 1/2	5 9/16	2	4 5/8	5 3/16	10	17 3/16	5 7/8	14 3/8
1 3/16	2 15/16	6 1/2	2 1/8	5	5 7/16	10 5/8	18	6 1/8	15
1 7/16	3 1/2	7 5/16	2 1/4	5 3/4	5 11/16	11 1/4	19 1/2	6 3/8	16 1/8
1 11/16	3 9/16	8	2 1/2	6 1/2	5 15/16	12 1/4	19 1/2	6 5/8	16 1/8
1 15/16	4 1/8	8 3/4	2 3/4	6 5/8	6 7/16	13 1/8	21 7/8	7	18 1/2
2 3/16	4 3/4	9 5/16	3	7 3/4	6 15/16	14 1/4	21 7/8	7 1/2	18 1/2
2 7/16	5	10	3 1/4	7 3/4	7 1/2	15	24 5/8	8	20 1/2
2 11/16	5 3/4	10 5/8	3 1/4	8 3/4	8	16	24 5/8	8 1/2	20 1/2
2 15/16	5 7/8	11 5/16	3 3/4	9	8 1/2	16 3/4	26 1/2	9	23
3 3/16	6 1/2	12	4	9 3/4	9	17 1/2	26 1/2	9 3/8	23
3 7/16	7 3/16	12 5/8	4 1/8	10 1/4	9 1/2	18	26 1/2	9 7/8	23
3 11/16	7 5/8	13 5/16	4 1/4	10 3/4	10	18 1/2	31 1/8	10 3/8	26 1/2
3 15/16	8	13 7/8	4 1/2	11 3/8	10 1/2	19	31 1/8	10 5/8	26 1/2
4 3/16	8 1/4	14 11/16	5 1/4	12 1/2	11	20	31 1/8	11 1/4	26 1/2
4 7/16	8 5/8	15 3/8	5 3/8	12 1/2	11 1/2	21	35	11 7/8	30
4 11/16	9 1/16	15 7/8	5 1/2	13 1/4	12	22	35	12 1/4	30
4 15/16	9 9/16	16 5/8	5 5/8	13 3/4					



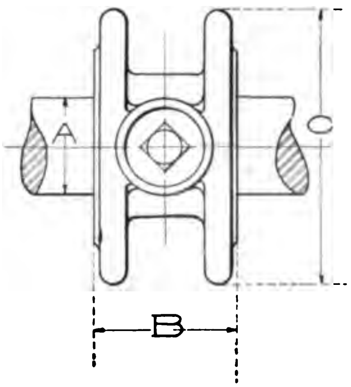
DIMENSIONS OF STANDARD TAKE-UPS

No.	A	B	C	D	E	F	G	H	I	J
4	11/16	2	1 27/32	11 3/8	4 1/4	1	3 7/16	1 3/16	3 3/4	
4	13/16	2	1 29/32	11 3/8	4 1/4	1	3 7/16	1 3/16	3 3/4	
4	15/16	2	1 31/32	11 3/8	4 1/4	1	3 7/16	1 3/16	3 3/4	
5	1 3/16	2 15/16	2 5/8	13 5/8	5	1 1/2	3 5/16	1 3/4	3 3/4	
5	1 5/16	2 15/16	2 11/16	13 5/8	5	1 1/2	3 5/16	1 3/4	3 3/4	
7	1 7/16	4 5/8	3 29/32	17 1/2	5 7/8	2 1/2	4 1/4	2 1/4	4 7/8	
7	1 9/16	4 5/8	4 1/32	17 1/2	5 7/8	2 1/2	4 1/4	2 1/4	4 7/8	
7	1 11/16	4 5/8	4 1/32	17 1/2	5 7/8	2 1/2	4 1/4	2 1/4	4 7/8	
9	1 15/16	5 1/8	4 3/4.	21 1/4	6 7/8	3	5 1/4	2 3/8	5 7/8	
9	2 3/16	5 1/8	4 7/8	21 1/4	6 7/8	3	5 1/4	2 3/8	5 7/8	
12	2 3/16	5 1/8	4 7/8	25 3/4	7 1/4	3	5 3/4	2 3/4	5 7/8	12
12	2 5/16	5 1/2	5	25 3/4	7 1/4	3	5 3/4	2 3/4	5 7/8	12
12	2 7/16	5 1/2	5	25 3/4	7 1/4	3	5 3/4	2 3/4	5 7/8	12
16	2 7/16	9	5 1/4	37 7/8	9 3/4	2 3/4	9 1/2	4		15 1/4
16	2 15/16	9	5 1/4	37 7/8	9 3/4	2 3/4	9 1/2	4		15 1/4

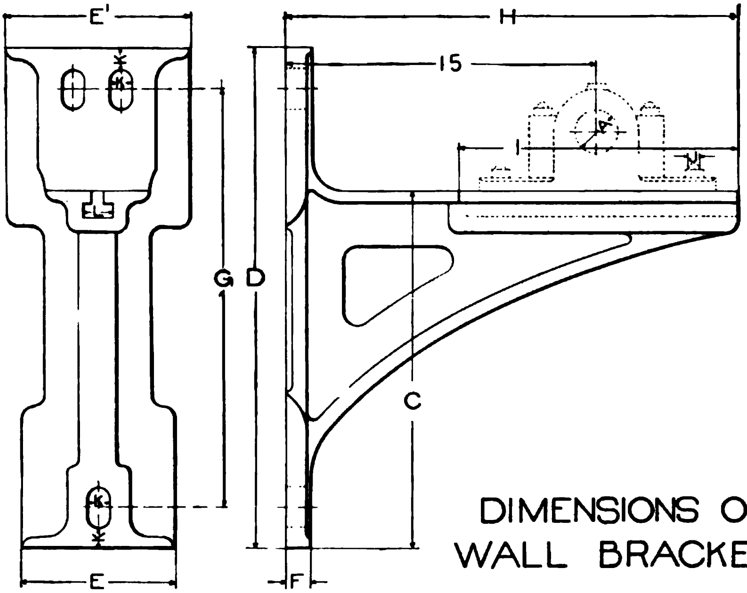
DIMENSIONS OF STANDARD TAKE-UPS

No.	A	B	C	D	E	F	G	H	I	J
20	2 7/16	5 1/2	5 5/32	34 3/4	9	3 1/8	6 1/2	3		12
20	2 9/16	6 1/8	5 11/32	34 3/4	9	3 1/8	6 1/2	3		12
20	2 11/16	6 1/8	5 11/32	34 3/4	9	3 1/8	6 1/2	3		12
20	2 13/16	6 1/8	5 13/32	34 3/4	9	3 1/8	6 1/2	3		12
24	2 15/16	6 5/8	5 29/32	42 1/2	11	3 3/8	8 1/2	3 3/4		15 1/4
24	3 7/16	7 1/4	6 7/32	42 1/2	11	3 3/8	8 1/2	3 3/4		15 1/4
24	3 15/16	8	6 15/32	42 1/2	11	3 3/8	8 1/2	3 3/4		15 1/4
25	2 7/16	9	5 5/16	46 7/8	9	2 3/4	9 1/2	4		15 1/4
25	2 15/16	9	5 3/8	46 7/8	9	2 3/4	9 1/2	4		15 1/4
36	2 15/16	6 5/8	5 29/32	54 1/2	11	3 3/8	8 1/2	3 3/4		15 1/4
36	3 7/16	7 1/4	6 7/32	54 1/2	11	3 3/8	8 1/2	3 3/4		15 1/4
36	3 15/16	8	6 15/32	54 1/2	11	3 3/8	8 1/2	3 3/4		15 1/4

DIMENSIONS OF SAFETY COLLARS

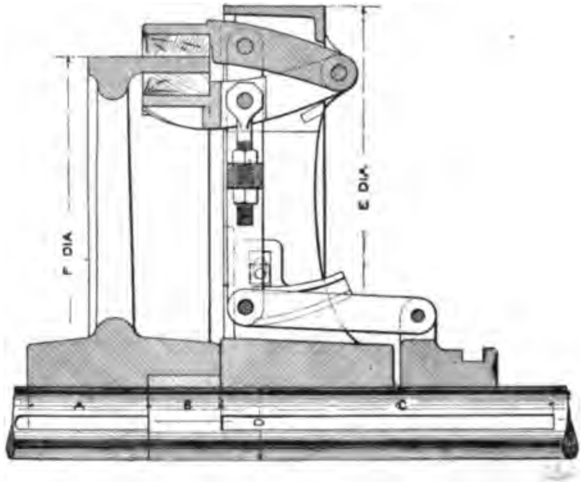


A	B	C	A	B	C
13/16	1 1/4	2 3/8	3 7/16	2 11/16	6 1/2
15/16	1 1/2	3	3 11/16	2 3/4	7 1/4
1 3/16	1 3/4	3 1/2	3 15/16	2 13/16	7 1/2
1 7/16	1 7/8	3 3/4	4 3/16	2 7/8	7 3/4
1 11/16	2	4	4 7/16	2 15/16	8 1/8
1 15/16	2 1/4	4 3/4	4 11/16	3 1/8	8 1/2
2 3/16	2 3/8	4 1/2	4 15/16	3 3/16	9 1/4
2 7/16	2 3/8	4 3/4	5 3/16	3 1/4	9 1/2
2 11/16	2 7/16	5 5/8	5 7/16	3 3/8	9 3/4
2 15/16	2 9/16	5 3/4	5 15/16	3 5/8	10 1/2
3 3/16	2 5/8	6 3/8			



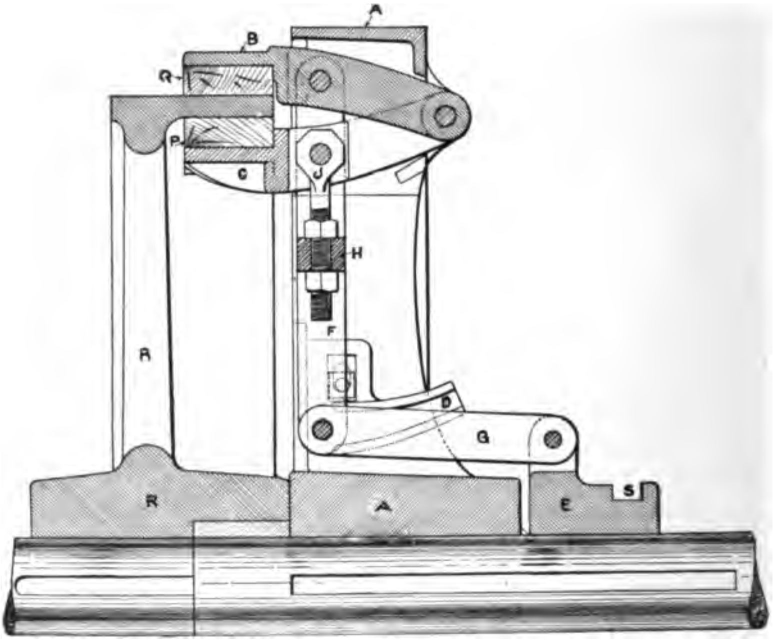
DIMENSIONS OF WALL BRACKETS

A	C	D	E	E'	F	G	H	I	J	K	L	M	ANCHOR BOLTS
15/16		13	3½	4½	9/16	10½	19	10	⅜	⅝	11/16	2¼	1 BOLT IN EACH END
1 3/16		15	4¼	5¼	⅝	10½	20	11	½	⅝	⅞	2¾	"
1 7/16	11	15	4¾	4¾	1½	12	21	13⅞	½	¾	⅞	3¾	"
1 11/16		19	5¾	6¾	1¾	15½	21	13	⅝	⅞	1⅛	4	"
1 15/16	14¼	19	5½	5¾	2¼	15½	21	16½	⅝	⅞	1⅛	5½	"
2 3/16	19½	26	7	8½	2¼	19½	22½	15¼	15/16	⅞	1⅛	5	"
2 7/16	19¼	26	5½	8¼	2½	22	22½	14⅛	1	1	1⅜	5½	"
2 11/16	19¼	26	5½	8¼	2½	23	22½	15¼	1	1	1⅜	6¼	2 BOLTS IN EACH END
2 15/16	19¼	26	5½	10½	2½	25½	28	20	1	1	1⅜	6½	"
3 3/16		32	9½	12	1 7/16	27½	23	18	1⅛	1	1⅜	7	"
3 7/16	25	34	10	12	3½	29	24	19	1⅛	1¼	1⅝	–	"
3 11/16	25	34	10	12	3½	30	24	19	1⅛	1¼	1⅝	8	"
3 15/16	25	34	10	14	4¼	30½	28½	23½	1⅛	1¼	1⅝	8½	"
4 7/16	28½	39	11	14	4½	32½	27	22½	1⅜	1⅝	1¾	9	"
4 15/16	28½	39	11	14	4½	33	27	22½	1⅜	1⅝	1¾	10	"
5 7/16		40	11¼	14½	1½	34	28	24	1⅛	1½	1⅞	11	"
5 15/16		41	11½	15	1⅝	34	30	25½	1⅛	1¾	1⅞	12	"
6 7/16		42	11¾	15½	1¾	35	31	27	1¼	1¾	2	13	"
6 15/16		43	12	16	1⅞	36	33	29	1¼	1¾	2	14	"



DIMENSIONS OF THE EWART GUARANTEED FRICTION CLUTCH

NUMBER OF CLUTCH	A	B	C	D	E	F
18	4	2¼	13½	2 15/16	22¼	18
20	4	2¼	13½	3 15/16	24¼	20
24	4½	2½	14	4 15/16	27¾	24
30	6	3	16½	6	34¼	30
36	6½	3½	17½	8	42	36
42	7	4	19	10	48½	42
48	8	4½	21	10	55¼	48
54	11	5	22½	12	64	54
66	12½	5½	32	18	78	66



COMPONENT PARTS OF
THE EWART
GUARANTEED FRICTION CLUTCH.
(PATENTED.)

A	MAIN FRAME
B	OUTSIDE JAW
C	INSIDE JAW
D	GUIDE
E	SHIFTING SLEEVE
F	LEVER
G	CONNECTING LINK
H	BLOCK
J	EYE BOLT
P	INSIDE WOOD BLOCK
V	OUTSIDE WOOD BLOCK
R	CLUTCH RING
S	CLUTCH BAND

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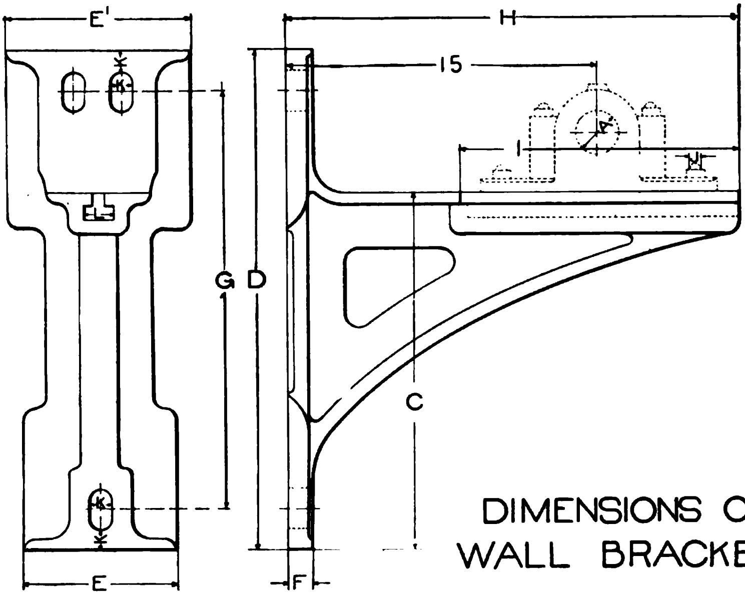

DIMENSIONS OF WALL BRACKETS

A	C	D	E	E'	F	G	H	I	J	K	L	M	ANCHOR BOLTS
15/16		13	3½	4½	9/16	10½	19	10	⅜	⅝	11/16	2¼	1 BOLT IN EACH END
1 3/16		15	4¼	5¼	⅝	10½	20	11	½	⅝	⅞	2¾	"
1 7/16	11	15	4¾	4¾	1½	12	21	13⅞	½	¾	⅞	3¾	"
1 11/16		19	5¾	6¾	1¾	15½	21	13	⅝	⅞	1⅛	4	"
1 15/16	14¼	19	5½	5¾	2¼	15½	21	16½	⅝	⅞	1⅛	5½	"
2 3/16	19½	26	7	8½	2¼	19½	22½	15¼	15/16	⅞	1⅛	5	"
2 7/16	19¼	26	5½	8¼	2½	22	22½	14⅛	1	1	1⅜	5½	"
2 11/16	19¼	26	5½	8¼	2½	23	22½	15¼	1	1	1⅜	6¼	2 BOLTS IN EACH END
2 15/16	19¼	26	5½	10½	2½	25½	28	20	1	1	1⅜	6½	"
3 3/16		32	9½	12	1 7/16	27½	23	18	1⅛	1	1⅜	7	"
3 7/16	25	34	10	12	3½	29	24	19	1⅛	1¼	1⅝	–	"
3 11/16	25	34	10	12	3½	30	24	19	1⅛	1¼	1⅝	8	"
3 15/16	25	34	10	14	4¼	30½	28½	23½	1⅛	1¼	1⅝	8½	"
4 7/16	28½	39	11	14	4½	32½	27	22½	1⅜	1⅝	1¾	9	"
4 15/16	28½	39	11	14	4½	33	27	22½	1⅜	1⅝	1¾	10	"
5 7/16		40	11¼	14½	1½	34	28	24	1⅛	1½	1⅞	11	"
5 15/16		41	11½	15	1⅝	34	30	25½	1⅛	1¾	1⅞	12	"
6 7/16		42	11¾	15½	1¾	35	31	27	1¼	1¾	2	13	"
6 15/16		43	12	16	1⅞	36	33	29	1¼	1¾	2	14	"